COMMONWEALTH MYCOLOGICAL INSTITUTE

AN ANNOTATED BIBLIOGRAPHY

OF

MEDICAL MYCOLOGY

1949

The contracted titles used in this bibliography are based on the *World List of Scientific Periodicals*, with the following exceptions:

B.A. = *Biological Abstracts*
B.H. = *Bulletin of Hygiene*
R.A.M. = *Review of Applied Mycology*
T.D.B. = *Tropical Diseases Bulletin*
V.B. = *Veterinary Bulletin.*

1282. Kessel (J. F.), Yeaman (Antoinette), & Holtzwart (Frances). **Mycoses encountered in the Pacific Southwest area of the United States of North America.**—*N.Z. med. J.*, 48, 266, pp. 346–356, 3 graphs, 1 map, 1949.

During the period from 1933 to 1948, the following fungi were observed in cases of systemic mycoses at the Los Angeles County Hospital, California: *Coccidioides immitis* 93, *Actinomyces bovis* [*A. israeli*] 29, *Cryptococcus neoformans* 11, *Blastomyces dermatitidis* 4, *Nocardia asteroides* 3, *Histoplasma capsulatum* 2, *Sporotrichum schencki* 2, and *Candida albicans* 6 (3 pulmonary, 2 generalized, 1 meningitis). These data form the basis for a comparison of the geographical distribution of cryptococcosis, coccidioidomycosis, histoplasmosis, and blastomycosis. The common procedures used at the Hospital for the laboratory diagnosis of fungal diseases are reviewed, and the value of the complement fixation test in coccidioidomycosis is discussed.

1283. Smith (D. T.). **Mycotic infections in North Carolina.**—*N.C. med. J.*, 10, 4, pp. 167–175, 1949.

The available information on the symptoms, diagnosis, prognosis, and treatment of the following mycoses which have been encountered on two or more occasions in North Carolina is summarized; actinomycosis and nocardiosis (*Actinomyces bovis* [*A. israeli*] and, in less than 10 per cent. of the clinical cases, *Nocardia asteroides*), North American blastomycosis (*Blastomyces dermatitidis*), histoplasmosis [*Histoplasma capsulatum*], coccidioidomycosis (*Coccidioides immitis*), cryptococcosis [*Cryptococcus neoformans*], sporotrichosis (*Sporotrichum schencki*), and moniliasis (*Candida albicans*). Geotrichosis, aspergillosis, mucormycosis, and penicilliosis [*Geotrichum*, *Aspergillus*, *Mucor*, and *Penicillium* spp.] occasionally produce severe infections but most commonly occur as saprophytic contaminants or secondary invaders. With the exception of *Coccidioides immitis*, all the fungi appear to be indigenous to the State.

1284. Meyer (Esther) & Kagen (M. S.). **Deep mycotic infections in Illinois.**—*Ill. med. Gaz.*, 94, 5, pp. 308–315, 1948.

Summaries are presented of 11 cases of deep mycotic infection which occurred recently in Illinois, namely, five of actinomycosis (*Actinomyces bovis* [*A. israeli*], involving (1) the lung (with empyema), (2) the chest and abdomen, (3) a breast, (4) the cervico-facial area, and (5) the ileocaecal region of the abdomen with a complicating subphrenic abscess; one each of subcutaneous sporotrichosis (*Sporotrichum schencki*) and pulmonary cryptococcosis (*Cryptococcus*

neoformans); and two each of systemic blastomycosis (*Blastomyces dermatitidis*) and maduromycosis (due in one patient to *Nocardia asteroides*).

In the treatment of actinomycosis surgical drainage, penicillin, sulphadiazine, and potassium iodide were used with good results. Brewer's thioglycollate semi-fluid medium containing dextrose was the most useful for the primary cultivation of *A. israeli*. The case of sporotrichosis was successfully treated with potassium iodide, and the patient suffering from pulmonary cryptococcosis reacted favourably to bronchoscopic surgery and penicillin. One case of blastomycosis proved fatal, but promising results were obtained in the other by a combination of potassium iodide and deep X-ray therapy with surgical treatment.

1285. Campbell (Charlotte C.) & Saslaw (S.). **Enhancement of growth of certain fungi by streptomycin.**—*Proc. Soc. exp. Biol., N.Y.*, 70, 3, pp. 562–563, 1 pl., 1949. [*B.H.*, 24, 617.]

Streptomycin incorporated into a synthetic liquid medium was found to favour the growth of laboratory strains of *Sporotrichum schencki*, *Coccidioides immitis*, *Phialophora verrucosa*, *Trichophyton mentagrophytes*, and *Histoplasma capsulatum* not previously exposed to this antibiotic.

1286. Wilson (J. W. W.) & Plunkett (O. A.). **Practical medical mycology: the culture of fungi as an office procedure.**—*Arch. Derm. Syph., Chicago*, 59, 4, pp. 414–429, 6 figs., 1949.

After an extensive survey of all available containers, a glass bottle of specific size and shape was selected which is believed to be an ideal vessel for the routine culture of fungi pathogenic to man. These ½-oz. (15 c.c.) perfume bottles, with black plastic screw caps, properly prepared for culture, may be obtained from the Derm Medical Company, 3053 Rosslyn Street, Los Angeles 41, at about $7 per 100. It is considerably cheaper to use these bottles once and discard them than to pay the labour cost of reconditioning an equal number of test tubes. A rapid and convenient method of inoculation is described.

1287. Emmons (C. W.). **Diagnostic problems in medical mycology.**—*J. infect. Dis.*, 39, 6, pp. 713–718, 1949.

In this address presented at the 76th Annual Meeting of the American Public Health Association at Boston, Massachusetts, on 10th November, 1948, the author outlines some of the diagnostic problems commonly arising in medical mycology.

1288. Littman (M. L.), McQuown (A. D.), & Schneidau (J. D.). **Recent advances in the culture diagnosis of fungus disease.**—*Amer. J. clin. Path.*, 19, 9, pp. 865–872, 3 figs., 1949.

The use of Littman's ox gall agar [No. 847] for the cultural diagnosis of cutaneous and systemic mycoses resulted in the detection of the former five to six times more frequently, and of the latter twice as often as on Sabouraud's dextrose agar. The laboratory routine regarded as most desirable for fungus culture is outlined.

1289. Salvin (S.). **The serologic relationship of fungus antigens.**—*J. Lab. clin. Med.*, 34, 8, pp. 1096–1104, 3 graphs, 1949.

Complement fixation methods were used at the Laboratory of Infectious Diseases, National Institutes of Health, Bethesda, Maryland, in the determination of the specificity of, and the relationship between, antigens from *Aspergillus fumigatus*, *Blastomyces dermatitidis*, *Candida albicans*, *Coccidioides immitis*, *Histoplasma capsulatum*, and *Mucor corymbifer* [*Absidia corymbifera*].

A. fumigatus and *M. corymbifer* were probably unrelated antigenically to the other four species, since they failed to absorb antibodies from any of the heterologous antisera. Although *B. dermatitidis* antigen was the least specific complement-fixing of the four remaining, it produced the most specific antibody. Its antiserum reacted with the homologous antigen and slightly with that of *H. capsulatum*, and was absorbed by the *H. capsulatum* antigen and to a lesser extent by the *C. immitis* and *Candida albicans* antigens. *H. capsulatum* produced serum that reacted about equally with the homologous antigen and that of *B. dermatitidis*, and which was absorbed by *B. dermatitidis* antigen and to a lesser extent by the *C. albicans* and *Coccidioides immitis* antigens. The two latter produced sera that fixed complement with, and were absorbed by, the antigens of *B. dermatitidis* and *H. capsulatum*.

1290. Paerson (I. A.), Hammer (J. M.), Corrigan (K. E.), & Hayden (H. S.). **Studies on the behaviour of fungi in the presence of radioactive isotopes.**—*J. Bact.*, 56, 4, pp. 397–402, 5 figs. on 3 pl., 1948.

Of 43 fungal species (including many pathogenic to man) tested, a large number survived exposure to radioactive phosphorus, iodine, and high voltage X-ray without alteration in morphology or pathogenicity.

1291. Mackinnon (J. E.) & Artagaveytia-Allende (R. C.). **Diferentes 'autoheterotrofias' en cepas de hongos de la misma especie.** [Different 'autoheterotrophies' in strains of fungi of the same species.]—*An. Inst. Hig. Montevideo*, 2, 1, pp. 11–31, 9 figs., 1948. [English summary.]

The information contained in this paper has already been published elsewhere [No. 1242].

1292. Leão (A. T.) & Eichbaum (F. W.). **Fungistatic and fungicidal action of hexylresorcinol.**—*Rev. brasil. Biol.*, 8, pp. 281–285, 1948. [French. Abs. in *Chem. Abstr.*, 43, 5, p. 1827, 1949.]

Hexylresorcinol at 1 in 100,000 in Sabouraud's medium was fungistatic for several species each of *Trichophyton*, *Sporotrichum*, *Microsporum*, *Achorion*, *Epidermophyton*, *Paracoccidioides*, and *Actinomyces*, while at 1 in 10,000 it acted similarly towards *Aspergillus*, *Penicillium*, *Candida*, and *Rhizopus* spp. Higher concentrations proved to be fungicidal. The efficiency of the compound was decreased in Sabouraud's medium by the addition of a minute quantity of lecithin.

1293. Miller (Catherine R.) & Elson (W. O.). **Diothiocarbamic acid derivatives. I. The relation of chemical structure to in vitro antibacterial and antifungal activity against human pathogens.**—*J. Bact.*, 57, 1, pp. 47–54, 1949.

The *in vitro* activity of certain derivatives of dithiocarbamic acid of the type found to be a highly therapeutic agent against microbial infections of plants was studied against representative bacteria and fungi pathogenic to man. As fungistatic agents several derivatives were more active than most of the agents at present used in human therapy.

1294. Coutelen (F.), Cochet (G.), & Biguet (J.). **Les cephalosporioses humaines. Revue critique à propos d'un cas.** [Human cephalosporioses. A critical review with reference to one case.]—*Ann. Parasit. hum. comp.*, 23, 5–6, pp. 364–398, 2 pl., 1948.

The authors present a full account of cervical maxillary gummae in a human subject which they consider was caused almost certainly by *Cephalosporium acremonium*, though experimental inoculations of laboratory animals gave only weakly positive results, if any. The least doubtful cases of cephalosporiosis reported in the relevant literature are those with the clinical aspect of

infiltrated dermatoses, gummata, and maduromycetomata. In general, these lesions in their clinical characters do not differ essentially from most other human mycotic tumours. A bibliography of 92 references is appended [No. 1550].

1295. Moore (M.), Anderson (W. A. D.), & Everett (H. H.). **Mucormycosis of the large bowel.**—*Amer. J. Path.*, 25, 3, pp. 559–563, 2 pl., 1949.

The morphological features of a fungus found in the ulcerative colonic lesions of a 37-year-old female patient at St. Joseph's Hospital, Milwaukee, Wisconsin, suggest its attribution to the genus *Mucor*, but cultures were not obtained. Death resulted from generalized peritonitis.

1296. Köhler (B.). **Kemoterapi vid aktinomykos.** [Chemotherapy in actinomycosis.]—*Nord. Med.*, 42, 40, pp. 1603–1605, 1949. [English summary.]

This report on two cases of abdominal actinomycosis from Nyköping, Sweden, is preceded by a discussion and evaluation of the various methods of therapy. In one of the author's patients (male, born 1912) a rapidly progressing infection proved refractory to sulpha drugs, and caused death within a year. The second patient (male, born 1894), with a mild infection, responded favourably to minor surgery over a period of eight years, supplemented by massive doses of penicillin and sulpha drugs. The causal organism in the second case is described as a bovine form of *Actinomyces*.

1297. Schneider (R. C.) & Rand (R. W.). **Actinomycotic brain abscess. Complete excision with recovery.**—*J. Neurosurg.*, 6, 3, pp. 255–259, 4 figs., 1949.

The authors report the successful treatment, by combined total surgical excision and antibiotic therapy, of an actinomycotic brain abscess in a 45-year-old male patient at the University of Michigan Hospital, Ann Arbor. The total dosages of sulphadiazine and penicillin were 258 gm. and 4,440,000 units, respectively. Following transfer to another hospital, an additional 1,920,000 units penicillin were administered, plus aerosol penicillin four times daily.

1298. Campbell (D. A.) & Bradford (B.). **Actinomycosis of the thorax and abdomen.**—*Arch. Surg.*, 57, 2, pp. 202–216, 5 figs., 1948.

Six cases of actinomycosis involving abdominal or thoracic viscera are reported. One case (a 30-year-old male) is believed to be the second on record of survival in actinomycotic abscess of the liver. The use of sulphonamide drugs and penicillin in adequate amounts, in addition to recognized surgical principles, is regarded as a definite contribution to the therapy of the disease.

1299. Ennever (J.), Robinson (H. B. G.), & Kitchin (P. C.). **Method for isolation of Actinomyces israeli from dento-bacterial plaque.**—*Science*, 110, 2857, pp. 334–335, 1949.

The dento-bacterial plaque mass, grown in the mouth on a tooth-bearing removable appliance, was placed in a micromortar containing 0·05 ml. autoclaved saline with triton A–20 at 1 in 200. A coarse suspension was prepared by trituration and one visible granule transferred to brain–heart infusion agar, streaked, and the preparation incubated anaerobically in an atmosphere of 5 per cent. carbon dioxide for six days. Fifteen attempts to isolate *Actinomyces israeli* from this source by this method were successful.

1300. Gottlieb (O.). **Penicillin ved cervico-facial actinomycose.** [Penicillin in cervico-facial actinomycosis.]—*Nord. Med.*, 42, 46, pp. 1807–1810, 1949. [English summary.]

At the State Hospital, Copenhagen, 12 patients with cervico-facial actinomycosis (*Actinomyces israeli* or *A. bovis* [*A. israeli*]) were successfully treated by combined surgery and penicillin therapy. Acute cases required the intramuscular administration of 100,000 Oxford units of the drug three times

daily for about a week, and chronic and subchronic ones with typical granules 300,000 three times daily for an average of a fortnight, or local treatment for the same period with a daily dose of 200,000 units, infiltrating in the form of an aqueous dilution of penicillin-procaine. Holm's 'atypical' Actinomycetes (*Acta Path. Microbiol. scand.*, 25, p. 376, 1948) also yielded to a week's treatment with penicillin (100,000 units three times daily). After only one or two days' treatment cultures from the pus yielded no growth. This mode of therapy may be regarded as equally reliable with the former treatment by X-ray and surgical drainage and much quicker, the average duration being only 21 days.

1301. Laskaris (T.) & Curtis (G. D.). **Concerning the 'parasitic' etiology of hairy tongue.**—*J. invest. Derm.*, 13, 2, pp. 99–107, 1949.

Microscopic and cultural studies were carried out on three cases of black or hairy tongue at the Kimball Clinical Laboratories, Glendale, California. The authors discuss the morphological similarity of *Lactobacillus acidophilus*, which was intimately associated with the condition in two of the patients, to *Nocardia* as seen in sections, smears, and cultures, and its probable relation to organisms previously described in the relevant literature as *Nocardia*, *Actinomyces*, etc. The etiological connexion of a parasitic organism with the disorder in question is regarded as doubtful.

1302. Poix (G.). **Actinomycose pulmonaire.** [Pulmonary actinomycosis.]—*Pr. méd.*, 51, 17, p. 235, 2 figs., 1943.

Actinomyces israeli was isolated in pure culture at the Pasteur Institute, Paris, from specimens taken from a 50-year-old male patient at the Hôpital Laennec, who succumbed to the disease about two years after its onset.

1303. Tenberg (J. A. G.). **Een geval van actinomycose van de pleura.** [A case of pulmonary actinomycosis.]—*Ned. Tijdschr. Geneesk.*, 93, 13, pp. 936–943, 1 graph, 1949. [French, German, and English summaries.]

A case of pulmonary actinomycosis in a 15-year-old boy is reported from Rotterdam. Combined sulphadiazine-penicillin therapy resulted in a complete cure.

1304. Fanconi (G.). **Ein Fall von Lungenaktinomykose im fistulösen Stadium, geheilt durch protrahierte Sulfonamidtherapie.** [A case of pulmonary actinomycosis in the fistulous stage cured by protracted sulphonamide therapy.]—*Schweiz. med. Wschr.*, 73, 7, pp. 175–178, 5 figs., 1 graph, 1943.

Full clinical details are given of a case of pulmonary actinomycosis in a 12-year-old boy at the University of Zürich Children's Hospital, in whom a complete cure was effected by protracted sulphonamide therapy.

1305. Oosthuizen (S. F.) & Fainsinger (M. H.). **Pulmonary actinomycosis.**—*Brit. J. Radiol.*, 22, 255, pp. 152–155, 3 figs., 1949.

The history, incidence, pathology, clinical aspects, and radiology of actinomycosis are discussed, with special reference to the lungs. The difficulties of establishing the differential diagnosis between actinomycosis and other chronic lung conditions by radiology are emphasized and it is suggested that in all doubtful cases a careful examination of the sputum should be made for the presence of *Actinomyces bovis* [*A. israeli*]. Three cases of suspected primary thoracic actinomycosis are reported from Pretoria, all in male Europeans, of whom two were farm labourers (25 and 35 years old) and one a town-dweller (30). The first showed a lung abscess of peculiar type; the second multiple abscesses, prominent lung markings, and dilated bronchi, with an abundantly positive sputum; and the third a mediastinal effusion. All three patients responded favourably to penicillin therapy.

1306. De Almeida (F. P.), Lacaz (C. da S.), & Forattini (O. P.). **Contribuição para o estudo da actinomicose toracopulmonar.** [Contribution to the study of thoracico-pulmonary actinomycosis.]—*Rev. paul. med.*, 32, 5, pp. 259–302, 12 figs., 1948.

This is a comprehensive survey and discussion of the available information on thoracico-pulmonary actinomycosis, comprising sections on the importance of the study of this form of the disease; portals of entry of the parasites and sources of infection; clinical forms; symptomatology; radiological signs; differential diagnosis; etiological data of actinomycosis; orientation followed in the identification of the Actinomycetes; principal species of Actinomycetes that have been isolated from thoracico-pulmonary lesions; diagnosis of thoracico-pulmonary actinomycosis; pathological anatomy; therapy of thoracico-pulmonary actinomycosis; and follow-up of the cures. Reports are then given on 15 cases of the disease studied in São Paulo, Brazil, mostly associated with *Actinomyces bovis* [*A. israeli*] or *A. brasiliensis*. A four-page bibliography is appended.

1307. Bowyer (H. W.). **Actinomycotic empyema.**—*Brit. med. J.*, *1949*, 4632, pp. 848–849, 1949.

A case of massive empyema due to *Actinomyces israeli* in a 49-year-old male patient is reported from the Bolton Royal Infirmary. The infection was overcome by a total dosage of 25,400,000 units of penicillin extending over a period of 56 days, supplemented by potassium iodide (2 gm.) thrice daily.

1308. Schain (P.), de Stefano (Anne), & Kazlowski (J. P.). **Actinomyces bovis in tissues and body fluids.**—*J. Lab. clin. Med.*, 34, 5, pp. 677–679, 1949.

At the Veterans Administration Hospital, Staten Island, New York, *Actinomyces bovis* [*A. israeli*] was isolated in pure culture from the body fluids and tissues of four patients with Hodgkin's disease, one case of a disease associated with brucellosis, one diagnosed clinically as abdominal granuloma, and one with xanthoma tuberosum. From this group the organism was recovered in all of the nine bone-marrow aspirations, two out of 24 blood samples, and from the spinal fluid, liver biopsy section, and corneal scrapings. Since the fungus has been found repeatedly over several months of observation in the same patients, it may evidently be associated incidentally with diseases other than actinomycosis.

1309. Baldacci (E.) & Koller (Maria). **Contributo alla conoscenza delle specie di Attinomiceti isolati da micetomi.** [A contribution to the knowledge of the species of Actinomycetes isolated from mycetomata.]—2 pp., Società italiana di Biologia sperimentale, Sezione di Pavia, 1944. [Received May, 1949.]

Strains of Actinomycetes (isolated from cases of Madura foot) studied by the authors were found to belong to the genera *Actinomyces* and *Proactinomyces*. The species described by Vincent as *Streptothrix madurae* (1894), the first isolation in pure culture of an Actinomycete from a case of Madura foot, is considered by the authors to be a ubiquitous soil fungus, the correct name for which is *A. madurae* (Vincent) Lachner-Sandoval, 1898 [*Nocardia madurae*].

The strains of *Proactinomyces* examined were *P. asteroides* (Epp.) Bald. and *P. pseudomadurae* Bald.

A. madurae is, in Redaelli's sense of the term, a pathogenic saprophyte. The saprophytic nature of *N. asteroides* is more uncertain, as this fungus has not yet been isolated from soil or non-living material. *P. pseudomadurae*, on the other hand, has a certain affinity with soil species; it is certainly not true that this fungus is a true agent of Madura foot, since it has characters intermediate between those of soil saprophytes and those of the anaerobic organisms of man. The disease is due both to *Actinomyces* and to *Proactinomyces* spp.

1310. Cope (V. Z.). **Visceral actinomycosis.**—*Brit. med. J., 1949*, 4640, pp. 1311–1316, 1949.

The available knowledge concerning the etiology, source of infection, symptomatology, diagnosis, and treatment by various methods, including the administration of sulphonamide drugs and penicillin, of visceral actinomycosis, commonly due to *Actinomyces bovis* or *A. israeli*, is presented and critically discussed in the Bradshaw Lecture, delivered at the Royal College of Surgeons of England on 10th November, 1949.

1311. Cope (V. Z.). **Actinomycosis involving the rectum and colon.**—*Proc. roy. Soc. Med.*, 42, 10, pp. 763–768, 1949.

In this paper, forming part of a discussion on granulomata of the large intestine, the author summarizes the available information on six cases, including one of his own, of primary actinomycosis of the colon, and on 40, collected from the pertinent literature and from personal inquiries, in which the rectum was involved. It is conjectured that in about half of the latter group the disease actually originated in the ampulla of the rectum, while in the remainder infection spread from some other focus in the abdomen. The age of the patients suffering from rectal actinomycosis (among whom males considerably preponderated) ranged from 14 to 70, with the majority of cases occurring between 20 and 40.

1312. Pemberton (H. S.) & Hunter (W. R.). **Intestinal actinomycosis treated with streptomycin.**—*Lancet*, 256, 6565, pp. 1094–1095, 2 figs., 1949.

A 32-year-old male Jewish patient at the David Lewis Northern Hospital, Liverpool, was treated with streptomycin (0·5 gm. by mouth twice daily for 30 days) for intestinal actinomycosis (*Actinomyces scabies*), and a very satisfactory clinical and radiological response was obtained.

1313. Finlay (C. C.) & Garvan (J.). **Actinomycosis of or surrounding an ovary.**—*Med. J. Aust.*, 36 (i), 26, pp. 845–847, 1949.

The post-mortem findings on a 22-year-old woman patient at the Marrickville District Hospital, New South Wales, were those of disseminated actinomycosis, which is thought to have originated in the pelvis near the position of the right ovary.

1314. Muñoz (I. D.), Vaccaro (H.), Ferrada (L.), & Figueroa (L.). **Actinomicosis isquia.** [Sciatic actinomycosis.]—*Rev. med. Chile*, 77, 3, pp. 211–214, 3 figs., 1949.

Actinomyces israeli was established as the causal organism in a case of actinomycosis of both gluteo-sciatic regions in a 50-year-old male patient of the authors. At the time of writing, an initial treatment with penicillin had given favourable results.

1315. Boand (A.) & Novak (M.). **Sensitivity changes of Actinomyces bovis to penicillin and streptomycin.**—*J. Bact.*, 57, 5, pp. 501–508, 3 graphs, 1949.

In vitro tests of the effect of penicillin and streptomycin on six strains of *Actinomyces bovis* [*A. israeli*] showed that penicillin was inhibitory (under the test conditions) in concentrations from 0·05 to 0·5 units per ml. Four strains showed a slight graduated increase in resistance to penicillin after 16 transfers but did not develop further resistance after 32 transfers over three months. Two strains showed no increase in penicillin resistance.

All six strains were originally inhibited by 30 units per ml. streptomycin. All developed at least a 250-fold increase in streptomycin resistance in ten transfers. The resistance of five strains was retained after 54 transfers in streptomycin-free medium.

1316. Torrens (J. A.) & Wood (M. W. W.). **Streptomycin in the treatment of actinomycosis. Report on three cases.**—*Lancet*, 256, 6565, pp. 1091–1094, 1 fig., 1 graph, 1949.

Three cases of actinomycosis (*Actinomyces israeli*) are reported from the West Middlesex Hospital, two in males, aged 27 and 33, and one in a 53-year-old female, the first and third being severe. Treatment with streptomycin resulted in improvement and arrest or cure of the disease in all three cases.

1317. Tucker (F. C.) & Hirsch (E. F.). **Nocardiosis, with a report of three cases of actinomycosis due to Nocardia asteroides.**—*J. infect. Dis.*, 85, 1, pp. 72–86, 8 figs., 1949.

Some important contributions to the literature on human infections caused by the aerobic *Nocardia asteroides*, which are rare compared with those due to the anaerobic *Actinomyces bovis* [*A. israeli*], are summarized and discussed. Three cases of actinomycosis associated with the former organism are reported, with the post-mortem observations, from St. Luke's Hospital, Chicago, Illinois, two in males aged 39 and 30, and one in a 23-year-old female.

1318. Hager (H. F.), Migliaccio (A. V.), & Young (R. M.). **Nocardiosis. Pneumonia and empyema due to Nocardia asteroides.**—*New Engl. J. Med.*, 241, 6, pp. 226–231, 6 figs., 1949.

The literature relating to infection by *Nocardia asteroides* is briefly reviewed and a concise account is given of the characters of the fungus and its effects on man. A case is presented of pulmonary infection complicated by empyema in a 16-year-old girl at Providence, Rhode Island. Treatment by surgical drainage and combined therapy with sulphadiazine, penicillin, and streptomycin was apparently successful. A second strain of the organism was isolated from the sputum of a 64-year-old woman with bilateral apical pulmonary lesions. In *in vitro* tests the pathogen was inhibited by penicillin, streptomycin, and aureomycin.

1319. Weed (L. A.), Baggenstoss (A.), & Baugher (Lois). **Some problems in the diagnosis of actinomycosis.**—*Proc. Mayo Clin.*, 24, 18, pp. 463–472, 3 figs., 1949.

The authors report from the Mayo Clinic, Rochester, Minnesota, six cases of which four were attributed on clinical or histological grounds to anaerobic *Actinomyces*. Bacteriological examination showed the disease to be pulmonary actinomycosis ([*Nocardia*] *asteroides*) in one, empyema (*Aspergillus fumigatus*) in one, mycetoma due to *Cephalosporium* sp. in one, and multiple abscesses of the spleen, possibly of actinomycotic origin, in one. In the fifth case an anaerobic *Actinomyces* was isolated from a supposedly tuberculous cervical lesion; prompt recovery followed treatment with large doses of penicillin. The same organism was isolated in the sixth case from a non-specific, chronic lung abscess.

The lesions in three of the foregoing cases contained structures superficially resembling the sulphur granules found in actinomycosis, but which were shown by culture not to harbour the fungus. In another case the lesion contained anaerobic *Actinomyces* without histological evidence of actinomycosis or sulphur granules.

1320. Ginsberg (A.) & Little (A. C. W.). **Actinomycosis in Dogs.**—*J. Path. Bact.*, 60, 4, pp. 563–572, 5 pl., 1948.

At the Royal Veterinary College, Edinburgh, a Gram-positive organism, occurring as a dense mycelium of acid-fast hyphae with true branches and closely resembling *Actinomyces* [*Nocardia*] *asteroides*, was isolated from the sero-purulent discharge from a throat sinus in a 4½-month-old Alsatian puppy.

A cure was effected by means of two injections of penicillin, each of 125,000 units.

A second non-pathogenic organism, isolated from a large, granulomatous growth in the abdomen of a 15-month-old Labrador dog suffering from diffuse peritonitis, was also Gram-positive and produced long hyphae with true branches.

1321. Cuttino (J. T.) & McCabe (Anne M.). **Pure granulomatous nocardiosis: a new fungus disease distinguished by intracellular parasitism. A description of a new disease in Man due to a hitherto undescribed organism, Nocardia intracellularis n. sp., including a study of the biologic and pathogenic properties of this species.**—*Amer. J. Path.*, 25, 1, pp. 1–47, 6 pl., 1949.

Nocardia intracellularis n. sp. is the name assigned to the fungus responsible for the fatal illness of a 34-month-old girl at Duke Hospital, Durham, North Carolina. Clinical features of the disease included malnutrition, an abdominal mass, and an afebrile course. The organism was isolated from a retroperitoneal lymph node removed for biopsy, from the culture of stools, and finally from the spleen and a lymph node at autopsy. It is characterized by branched, non-motile, non-staining hyphae, 0·2 to 0·45 μ in width, not clavate at the tips; chlamydospores were not observed. Gelatin is not liquefied. Litmus mild turns acid after 20 to 30 days. Good growth is made on Sabouraud's agar from the third to seventh day onwards. Starch is not changed, cellulose and potassium nitrates are not decomposed, tyrosinase is absent, and indole is not produced.

The disease induced by *N. intracellularis* in man is a pure form of granulomatous inflammation, involving phagocytosis of the pathogen by reticuloendothelial cells and proliferation of the latter. Massive intracellular parasitism, resulting from equilibrium between the organism and its host cell, constitutes possibly the most distinctive feature of the disease. The fungus provokes in guinea-pigs, rats, and mice a non-lethal reaction marked by extensive necrosis and relative paucity of intracellular organisms. The lesions heal rapidly to the accompaniment of the production of sensitivity of the tuberculin type.

1322. Hoffmann (E.). **Weiteres zur Natriumthiosulfatbehandlung von Pilzflechten der Haut.** [More about the sodium thiosulphate treatment of fungal eruptions of the skin.]—*Ärtzl. Wschr.*, 3, 17–18, pp. 278–279, 1948.

A concentrated (minimum 50 per cent.) aqueous solution of sodium thiosulphate with 5 to 10 per cent. glycerine has given excellent results in the therapy of superficial dermatomycoses, including long-standing erythrasma (*Microsporum minutissimum* [*Nocardia minutissima*]), pityriasis versicolor [*Malassezia furfur*], and epidermophytoses.

1323. Kämpe (Å.). **Om aktinomykos hos Nötkreatur.** [Actinomycosis in Cattle.]—*Skand. VetTidskr.*, 34, pp. 65–104, 1944. [English summary. *V.B.*, 19, 9.]

Six cases of actinomycosis of the maxilla in cattle were found to be due to *Actinomyces 'wolff-israel'* [*A. israeli*].

1324. Gerstl (B.), Tager (M.), & Szczepaniak (L. W.). **The pathogenicity of bagasse, II. Effect on Rabbits of prolonged exposure to bagasse.**—*Proc. Soc. exp. Biol., N.Y.*, 70, 4, pp. 697–702, 5 figs., 1949.

The clinical and industrial problems of bagasse disease have attracted increasing attention of late years, but so far its pathogenesis remains obscure. The progressive inflammatory reaction, ending in death, induced in rabbits by protracted exposure to bagasse, administered by various methods, is attributed to species of *Aspergillus* attached to the fibre of the material. None of the lesions resembled those caused by silicosis.

1325. Lurie (H. I.) & Brookfield (Miss E.). **Aspergillus sp. causing otomycosis: fungicidal action of various therapeutic substances.**—*S. Afr. med. J.*, 23, 9, pp. 158–160, 1949.

Of the two species of *Aspergillus* mainly responsible for otomycosis, *A. niger* and *A. nidulans*, the former proved to be more resistant to fungicides than the latter. The most effective fungicides were 1 per cent. methyl green and alcohol at 50 per cent. or above, and a combination of the two, with the addition of a wetting agent, is suggested as the best treatment for this form of otomycosis.

1326. Moore (M.) & Weiss (R. S.). **Onychomycosis caused by Aspergillus terreus.** *J. invest. Derm.*, 11, 3, pp. 215–223, 4 figs., 1948.

A case of onychomycosis is reported in a 47-year-old male patient at the Barnard Free Skin and Cancer Hospital, St. Louis, Missouri, in which the etiological agent was *Aspergillus terreus*. The fungus was demonstrated in potassium hydroxide preparations of the toe nail and grown in pure culture on Czapek's agar and Sabouraud's dextrose agar. This is believed to be the first record of *A. terreus* as an agent of onychomycosis, but 11 other species of *Aspergillus* isolated from nail infections are listed.

1327. Ashley (P.). **External otitis in the tropics.**—*U.S. nav. med. Bull.*, 46, 8, pp. 1230–1236, 1 diag., 1946.

The problem of the therapy of external otitis in the tropics is discussed under the headings of clinical findings, predisposing factors, and treatment, nine formulas being given of preparations which have been found effective.

1328. Gorlenko (M. V.). **The toxins of moulds.**—*Amer. Rev. Soviet Med.*, 5, 4, pp. 163–164, 1948.

In addition to *Stachybotrys alternans*, the agent of stachybotryotoxicosis of horses in the U.S.S.R. [No. 429], a number of other moulds proved toxic in experiments performed on rabbits at Tashkent (Ukraine) in 1942, including *Aspergillus candidus*, *A. niger*, *Rhizopus nigricans* [*R. stolonifer*], *Alternaria tenuis*, *Mucor* sp., *Cladosporium herbarum*, and *Trichothecium roseum*. Although the toxicity of these organisms is lower than that of *S. alternans*, they grow and sporulate more rapidly and profusely, and are thus able to induce repeated injury of the mucous membranes. At the minimum dosage of toxin, *Aspergillus candidus* was more toxic to the cornea of rabbits than *S. alternans*, whereas *A. niger* was less toxic.

1329. De Arêa Leão (A. E.) & Cury (A.). **Observações sobre aspergillose de Passaros.** [Observations on aspergillosis of Birds.]—*Mem. Inst. Osw. Cruz*, 46, 3, pp. 653–657, 5 figs., 1948. [English summary.]

Two cases of aspergillosis (*Aspergillus fumigatus*) in *Tanagra violacea* are reported from Rio de Janeiro, Brazil, hyphae and conidiophores of the fungus being present in the tissues. The fungus was highly pathogenic to guinea-pigs, rabbits, and more especially to pigeons. It was reisolated from all the inoculated animals.

1330. Dutton (L. O.). **Mold fungi in the etiology of respiratory allergic diseases. X. Intrinsic fungus factors in relation to asthma.**—*Ann. Allergy*, 7, 5, pp. 585–591, 1949.

The author's method for the detection of certain types of allergic clinical patterns due to fungi at El Paso, Texas, consists, briefly, in the routine culture of the sputum of asthmatic patients and the clinical and immunological evaluation of the significance of the strains isolated. If clinical and mycological evidence is suggestive and the skin tests are positive, treatment is carried out

essentially as in pollen therapy. Improvement in the clinical status of a small but significant proportion of patients suffering from apparently intractable asthma has been obtained; they may be placed in three fairly definite categories, viz,: (1) those presenting the necessary mycological data together with X-ray or other evidence of pulmonary disease; (2) the symptoms and cultural findings are reasonably constant and infiltrative lesions or other evidence of pulmonary disease are lacking, indicating the existence of intrabronchial but non-pathogenic fungal infections to which the patient has become allergic, with resultant asthmatic symptoms; (3) symptoms are paroxysmal, the history suggests some environmental factor as the origin of the trouble, and the cultures show sporadic growth of fungi. Descriptions are given of cases illustrating each of the groups.

1331. Morrow (Marie B.) & Thiers (H. D.). **Mold fungi in the etiology of respiratory allergic diseases. XI. Phytopathogenic fungi in aerobiological populations.**—*Ann. Allergy*, 7, 5, pp. 592–596, 1949.

Studies were carried out at the University of Texas to determine the incidence of certain local phytopathogenic fungi in aerobiological populations [No. 175] as a contribution to the potential function of such organisms as excitants in respiratory allergic diseases. The fungi selected for the investigation, which extended from 2nd April to 17th July, 1946, with supplementary surveys in the following December and January, were *Sphacelotheca sorghi* and *Puccinia purpurea* on *Sorghum halepense*, *Ustilago cynodontis* on *Cynodon dactylon*, *P. dichondrae* on *Dichondra caroliniensis*, *Uncinula australiana* on *Lagerstroemia indica*, *Microsphaera alni* [*M.* (?) *euonymi*] on *Euonymus* sp., and *M. circinata* on *Sapindus drummondii*. Samples of the air population were obtained on adhesive slides at sites within 20 to 30 ft. of heavily infected hosts of each of the pathogens. Of these, all except *P. dichondrae* were found to be air-borne, and would thus fall into the 'potential' category in respect of allergic significance in inhalant respiratory diseases. Recovered only at the corresponding sampling sites, the spores of *Ustilago cynodontis*, *P. purpurea*, *M. alphitoides*, and *Uncinula circulata* appear to be limited to the immediate vicinity of the infected hosts, but the range of *Sphacelotheca sorghi* and *U. australiana* is considerably wider, and their potential allergic significance is correspondingly greater than that of the foregoing. Seasonal variation is strongly indicated for the smuts, less so for the rusts, and is negligible or absent in the case of the powdery mildews.

1332. Prince (H. E.), Arbesman (C. E.), Sellers (E. D.), Petit (P. T.), Brown (E. A.), & Morrow (Marie B.). **Mold fungi in the etiology of respiratory diseases. XII. Further studies with mold extracts.**—*Ann. Allergy*, 7, 5, pp. 597–609, 1949.

The results of the studies herein described and tabulated suggest that glycero-saline extracts of *Hormodendrum cladosporioides*, *Helminthosporium interseminatum*, *Spondylocladium* sp., *Curvularia trifolii*, and *Nigrospora sphaerica*, prepared by the acetone-precipitation technique, contain group, as well as generic or possibly specific, antigens, as previously demonstrated for *Alternaria tenuis*. Sensitization to these Dematiaceous moulds, however, must be evaluated in the light of the actual reagins demonstrable in any given patient, the distribution of such substances being variable. Ordinarily it would seem that *A. tenuis* should protect against other members of the same group, but occasionally different species may assume immunological dominance, and the possible existence of reagins to these moulds would require consideration from a therapeutic standpoint.

1333. Figley (E. D.) & Rawling (F. F. A.). **Mold fungi in the etiology of respiratory allergic diseases. XIII. The use of a concentrated extract in the treatment of mold-sensitive patients.**—*Ann. Allergy*, 7, 5, pp. 610–611, 1949.

On the basis of clinical experience with 200 patients at Toledo, Ohio, since October, 1947, the writers believe that a concentrated *Alternaria* extract (Series 33), supplied by Dr. Prince, is superior to commercial extract for the diagnosis and treatment of sensitivity to this mould.

1334. Walton (C. H. A.). **Respiratory allergy due to fungi.**—*Canad. med. Ass. J.*, 60, 3, pp. 272–275, 5 figs., 1949.

The author briefly reviews the present-day concept of fungus allergy and the properties of the air-borne fungi occurring in Manitoba. Of 275 successive cases of asthma examined in 18 months, 88 appeared to be definitely allergic to fungi. The seasonal saprophytes, *Alternaria*, *Hormodendrum*, and *Helminthosporium*, were clinically significant in 59 cases (67 per cent.), and importance was attributed to the seasonal parasites (cereal rusts and smuts) in 17 (19·2 per cent.). Evidence is adduced indicating that organisms of the latter group are definitely implicated in the etiology of asthma in a small proportion of cases, but rarely, if ever, exclusively. The non-seasonal fungi, including *Penicillium*, *Mucor*, *Monilia* [*Candida*], *Rhizopus*, and *Aspergillus* spp., appeared to be clinically significant in 46 cases (52 per cent.), but the evaluation of their relative importance in the causation of respiratory allergy presents great difficulties.

1335. Heise (H. A.) & Heise (Eugenia R.). **The distribution of ragweed pollen and Alternaria spores in the upper atmosphere.**—*J. Allergy*, 19, 6, pp. 403–407, 2 figs., 1948.

Counts of ragweed [*Ambrosia*] pollen grains and *Alternaria* spores in the upper atmosphere were made during flights over Mitchell Field, Milwaukee, Wisconsin, in September, 1947. The maximum concentration of both types of particles on slides exposed for five minutes occurred at 2,500 ft. above sea-level, (4,700 spores). Cumulus clouds and surrounding atmosphere contained many times the number of particles found in clear air. The level of maximum concentration of particles rose from early afternoon until about 8 p.m., after which it fell slowly until dawn.

1336. Heise (H. A.) & Heise (Eugenia R.). **The influence of temperature variations and winds aloft on the distribution of pollens and molds in the upper atmosphere.** *J. Allergy*, 20, 5, pp. 378–382, 1 fig., 1949.

Ragweed [*Ambrosia*] pollen grains and *Alternaria* spores rise into the upper atmosphere to a height depending chiefly on the 'lapse rate', i.e., the rate of temperature change with altitude, being about 1° C. per 100 m. altitude in dry air and $\frac{1}{2}$° in moist. A high lapse rate is usually associated with turbulent air and a profuse dissemination of particles. The influence of winds aloft on the particle concentration is of minor importance in comparison with the lapse rate. Tables are given showing some of the characteristic data relating to the above-mentioned substances and rust [*Puccinia*] spores obtained during flights at Milwaukee, Wisconsin, in August and September, 1948.

1337. Newton (Anna), Scherago (M.), & Weaver (R. H.). **Mold distribution in air and dust in Kentucky.**—*Ann. Allergy*, 6, 3, pp. 260–270, 3 graphs, 1948.

A tabulated account is given of a survey of mould distribution in in- and outdoor air and house dust in eastern and in central and western Kentucky. Two series of observations were made, one in January and the other in March,

1946. Apart from *Penicillium* and *Phycomyces*, which were more prevalent in January, all the other species encountered in both months were more abundant in March, when 11 additional genera, not represented in January, were also recognized. There was little difference in the lists of genera occurring in the different regions of the State, except that *Monotospora brevis* was identified only from the central and western and *Tetracoccosporium* sp., *Macrosporium commune* [? *Pleospora herbarum*], and *Stemphylium macrosporoideum* [*Acrospeira macrosporoidea*] only from the eastern. *Penicillium* spp., including *P. citrinum*, *P. frequentans*, *P. notatum*, and *P. spinulosum*, predominated in both regions. Certain species were found to preponderate in outdoor air, others in indoor, and others again in house dust. *Aspergillus luchuensis* and *Hormodendrum cladosporioides*, for instance, occurred almost exclusively in house dust, *H. nigrescens* in indoor air, and *H. viride* out-of-doors.

1338. Bieberdorf (F. W.) & Argabrite (J. W.). **Extracts of molds grown on synthetic media.**—*J. Allergy*, 20, 1, pp. 50–55, 1949.

A method is described for the preparation of air-borne mould (*Hormodendrum*, *Alternaria*, *Spondylocladium*, *Helminthosporium*, *Fusarium*, *Aspergillus*, *Phoma*, and *Penicillium* spp.) extracts from cultures on a synthetic medium, which eliminates the use of peptone. The extracts were found to be more potent than extracts from peptone media of the same protein nitrogen unit value, and they were apparently non-irritant. Synthetic mould extracts, moreover, eliminate the need for additional washings of the mould pellicles.

1339. Moore (M.) & Halpern (L. K.). **Blastomycosis involving the prostate: report of two cases, one with and one without cutaneous lesions.**—*J. Urol.*, 60, 4, pp. 612–622, 3 figs., 1949.

A review of the pertinent literature precedes this report of two cases of blastomycosis (*Blastomyces dermatitidis*) with prostatic involvement in patients at the Barnard Free Skin and Cancer Hospital, St. Louis, Missouri, one a 56-year-old coal-miner from southern Illinois and the other a 64-year-old physician resident in the same district; the second patient succumbed to the disease.

1340. Levine (S.) & Novák (M.). **The effect of fatty acids on the oxygen uptake of Blastomyces dermatitidis.**—*J. Bact.*, 57, 1, pp. 93–94, 1949.

A study of the effect of the structure and length of the carbon chain in the fatty acid series upon the oxygen consumption of two strains of *Blastomyces dermatitidis* showed that acetic, propionic, butyric, valeric, caproic, heptylic, and caprylic acids stimulated oxgyen uptake, while the acids with longer carbon chains than caprylic acid (pelargonic, capric, undecylic, lauric, oleic, and linoleic acids) inhibited oxygen uptake, all but pelargonic acid doing so completely. Increasing the number of double bonds in the molecule, as in the case of oleic and linoleic acids, had no effect on the inhibition of oxygen uptake. Preliminary studies indicate that branching of the carbon chain, such as occurs in isovaleric acid, markedly decreases ability to stimulate respiration.

1341. Whitaker (H. W.). **North American blastomycosis: report of a case in which a patient with meningeal involvement was treated with streptomycin and promin.**—*Arch. Path.*, 48, 3, pp. 212–217, 2 figs., 1949.

The literature of systemic blastomycosis (*Blastomyces dermatitidis*) with meningeal involvement is reviewed, and details are given of a further case, in which a 55-year-old negro patient at the Veterans Administration Hospital, Memphis, Tennessee, was unsuccessfully treated with streptomycin and promin.

1342. Starrs (R. A.) & Klotz (M. O.). **North American blastomycosis (Gilchrist's disease) : I. A study of the disease from a review of the literature. II. An analysis of Canadian reports and description of a new case of the systemic type.** —*Arch. intern. Med.*, 82, 1, pp. 1–53, 23 figs., 1948.

In the first part of this paper the writers present the available information on North American blastomycosis (*Blastomyces dermatitidis*) gleaned from a perusal of the relevant literature under a variety of aspects, including historical data, geographical distribution, incidence of dissemination, source, portal of entry, and mode of transmission of the pathogen, demonstration of the fungus, its structure and cultural characters, symptoms and clinical features, pathological changes, diagnosis, the intracutaneous test, the complement-fixation reaction, roentgenological observations, differential diagnosis, clinical contrasts between Gilchrist's disease and other mycoses, prognosis, and treatment.

The second part comprises a critical analysis of all previous reports of Canadian cases of the disease and a further (fatal) case in a 40-year-old female patient at the Ottawa Civic Hospital is fully described.

1343. Ladany (E.). **Cutaneous blastomycosis, North American type.**—*N.Y. St. J. Med.*, 48, 11, pp. 1281–1283, 3 figs., 1948.

An unusually extensive case of cutaneous blastomycosis (*Blastomyces dermatitidis*) in a 65-year-old male negro patient at the New York Polyclinic Hospital is reported, involving the face, left arm and foot, both hands, and right thigh. The diagnosis was confirmed by direct examinations, cultures, histologic studies, and skin and complement-fixation tests. Penicillin suppressed the secondary manifestations but failed to influence the disease. Some improvement was effected by cutaneous desensitization combined with electrosurgery.

1344. Moreau (M. H.). **Un caso de pie de Madura.** [A case of Madura foot.]—*Prensa méd. argent.*, 36, 5, pp. 230–232, 4 figs., 1949.

The fungus isolated on Sabouraud's agar from the right foot of a 63-year-old female patient at the Hospital T. Alvarez, Buenos Aires, was identified as *Zymonema* [*Blastomyces*] *dermatitidis*. The pathological changes revealed by radiographs are described and illustrated.

1345. Delamater (E. [D.]). **Nuclear cytology of fungi.**—*Trans. N.Y. Acad. Sci.*, Ser. ii, 11, 5, pp. 162–164, 1949.

Recent advances in the study of the nuclear cytology of fungi are reviewed in the light of 17 contributions to the literature, with special reference to the author's researches on *Blastomyces dermatitidis* and *Saccharomyces cerevisiae*.

1346. Delamater (E. D.). **Rough-smooth variation in Blastomyces dermatitidis Gilchrist and Stokes 1898.**—*J. invest. Derm.*, 12, 2, pp. 101–110, 16 figs., 1949.

A phenomenon apparently comparable with the rough-smooth variation in bacteria was observed at the Mayo Clinic, Rochester, Minnesota, in the yeast-like phase of six out of 14 strains of *Blastomyces dermatitidis*. It is unstable, reversible in both directions, and is tentatively referred to the multinucleate state of the organism. Uninucleate lines have not yet been obtained. Up to the present no correlation has been established between the virulence of the organism and the morphology of its colonies and cells.

1347. Artagaveytia-Allende (R. C.). **Some biological characteristics of the pathogenic fungi named Paracoccidioides brasiliensis and Paracoccidioides cerebriformis.**—*J. dent. Res.*, 28, 3, pp. 242–247, 5 figs., 1949.

The macroscopic and microscopic differences between *Paracoccidioides brasiliensis* and *P. cerebriformis*, agents of South American blastomycosis, are

presented in tabular form. They are clearly shown by the discrepancies between the two species in the utilization of some common nitrogenous compounds and sugars. *P. brasiliensis* proved to be pathogenic to guinea-pigs, which were not affected by *P. cerebriformis*. The third causal organism of the disease, *P. tenuis*, could not be included in these studies, which were conducted at the Institute of Hygiene, Montevideo, Uruguay, but it appears to be closely related to *P. brasiliensis*. The importance of the disease in relation to odontology is emphasized [cf. No. 729].

1348. Artagaveytia-Allende (R. C.) & García-Zorrón (Noemí). **Las especies del género Paracoccidioides, Almeida, 1930.** [The species of the genus *Paracoccidioides*, Almeida, 1930.]—*An. Inst. Hig. Montevideo*, 2, 1, pp. 69–73, 1949.

The biological method was applied to the differentiation of *Paracoccidioides brasiliensis*, *P. tenuis*, and *P. cerebriformis* [No. 1347 and *R.A.M.*, 18, p. 29]. All five strains of *P. brasiliensis* utilized peptone and (to a lesser extent) asparagine, but not urea, potassium nitrate, or ammonium sulphate. Glucose was the only one of five sugars to be assimilated. Milk was peptonized and gelatine liquefied. The reactions of *P. tenuis* were identical with the foregoing. On the other hand, *P. cerebriformis* utilized all the nitrogenous compounds (ammonium sulphate slightly) and, in addition to glucose, saccharose, maltose, galactose, and lactose (the last-named slightly). On blood agar *P. cerebriformis* did not produce the budding forms typical of the two other species. The optimum temperature for *P. cerebriformis*, as already shown by Moore [loc. cit.], is 25° C.

On the basis of these data, the authors conclude that *P. tenuis* is identical with *P. brasiliensis*. *P. cerebriformis* occupies an anomalous position, differing from *P. brasiliensis* in its temperature relations, failure to form buds, and lack of pathogenicity to guinea-pigs, and the question of its exclusion from the genus should be considered.

1349. Da Silva Lacaz (C.). **Blastomicose sul-americana. Reaçôes intradermicas com a paracoccidioidina, coccidioidina e blastomicetina.** [South American blastomycosis. Intradermal reactions with paracoccidioidin, coccidioidin, and blastomycetin.]—*Rev. Hosp. Clin.*, 3, 1, 1948. [Abs. in *Dermatol. & Venereol.* (*Excerp. med.*, Sect. XIII), 3, 12, p. 606, 1949.]

Intradermal tests with paracoccidioidin, coccidioidin, and blastomycetin [antigens of *Paracoccidioides brasiliensis*, *Coccidioides immitis*, and *Blastomyces dermatitidis*, respectively], on patients suffering from South American blastomycosis [*P. brasiliensis*] in Rio de Janeiro, Brazil, led to the following conclusions. A negative reaction to paracoccidioidin does not invalidate the diagnosis; it may occur in asthenic patients or those with an incipient affection. As the lesions develop, the reaction to paracoccidioidin becomes positive. The reaction to coccidioidin is negative. The response to blastomycetin is positive in a small proportion of cases (group reactions), patients sensitive to blastomycetin reacting similarly to paracoccidioidin.

1350. Mackinnon (J. E.) & Vinelli (H.). **Observaciones sobre la forma multibrotante de Paracoccidioides brasiliensis en los cultivos.** [Observations on the multiple budding form of *Paracoccidioides brasiliensis* in cultures.]—*An. Fac. Med. Montevideo*, 34, 4–5, pp. 461–470, 18 figs., 1949. [English summary.]

The simple or multiple gemmules of *Paracoccidioides brasiliensis* in blood agar cultures at 37° C., stained with iron haematoxylin, were found to be produced by a budding process. Hypertrophied cells, 30 to 40 μ in diameter, developing after 18 to 20 days, did not appear to differ functionally from those of normal size. The crescent-shaped cells which were also observed in adult

cultures are believed to arise through compression by other cells. Cells of all sizes, often no longer spherical and having a central vacuolized mass staining only at the periphery, are believed to be forms of involution or dead.

1351. Mackinnon (J. E.), Montemayor (L.), & Vinelli (H.). **Observaciones personales sobre la morfología de Paracoccidioides brasiliensis en los tejidos.** [Personal observations on the morphology of *Paracoccidioides brasiliensis* in the tissues.]—*An. Fac. Med. Montevideo*, 34, 4–5, pp. 453–460, 11 figs., 1949. [English summary.]

The morphology of *Paracoccidioides brasiliensis* was studied in tissue sections of the case of Tobias and Niño (*Prensa méd. argent.*, 1938) stained with iron haematoxylin and by Gallego's topographic method. The cells are surrounded by a thin membrane, between which and the protoplasm is a clear zone, 0·5 to 2 μ in thickness, possibly originating in part in retractions of the protoplasmic mass induced by excitations or by the fixative (formol); it is not regarded as an organized structure. Outside the thin membrane is another clear zone apparently arising from a vacuole in the host cell. The multiple buds assume the form of slender, tube-like pseudopodia which push their way through the thin membrane. After multiple budding the mother cells degenerate and die. Old cells contain very large vacuoles, while at a very advanced age the thin outer membrane, the underlying clear zone, and a round or irregular, empty residue of the inner protoplasm can still be observed.

1352. Heilman (F. R.). **Experimental production of rapidly fatal blastomycosis in Mice for testing chemical agents.**—*J. invest. Derm.*, 9, 2, pp. 87–90, 1947.

Uniform and rapidly fatal infections in mice were produced at the Mayo Clinic, Rochester, Minnesota, by the intravenous injection of the yeast-like and mycelial forms of two strains of *Blastomyces dermatitidis*, isolated from cases of meningeal and cutaneous blastomycosis, respectively. The time of death, which was due to embolic pneumonia, was directly correlated with the number of organisms administered.

1353. Salvin (S. B.). **Phase-determining factors in Blastomyces dermatitidis.**—*Mycologia*, 41, 3, pp. 311–319, 2 figs., 1949.

When the yeast-like phase of three strains of *Blastomyces dermatitidis* was grown in a chemically defined semi-fluid medium temperature was found to be the most important environmental factor controlling growth type. No amino acid, carbohydrate, or 'growth substance' tested was an essential accessory factor for growth of the yeast-like phase at 37° C., but extent of growth of this phase varied greatly according to the constitution of the medium.

1354. Manwaring (J. H.). **Unusual forms of Blastomyces dermatitidis in human tissues.**—*Arch. Path.*, 48, 5, pp. 421–425, 9 figs., 1949.

Forms of *Blastomyces dermatitidis* measuring 2·2 to 16·5 μ in diameter were found in the lung tissues at the autopsy on a 76-year-old female patient at the Duke University, North Carolina. These dimensions are smaller than any yet recorded for the fungus, and the possibility of confusion between such forms and those of *Histoplasma capsulatum* is emphasized.

1355. Benedek (T.). **Blastomycosis (Gilchrist) (North American type). The first case on record successfully treated with penicillin. With a survey of the literature concerning the treatment of deep-seated mycosis by penicillin and/or sulfonamides.**—*Urol. cutan. Rev.*, 53, 4, pp. 216–220, 3 figs., 1949.

Full clinical details are given of a case of severe, progressive, ulcero-gummatous North American blastomycosis (*Blastomyces dermatitidis*) in a 55-year-old female patient at the Salvation Army Clinic, Chicago, the diagnosis being

confirmed by the biopsy and the detection of typical budding forms of the fungus in miliary abscesses. A complete cure was effected by daily intramuscular injections of 600,000 units of penicillin G in oil for 16 days. This is apparently the first case of a deep-seated mycosis to be cured by penicillin.

1356. McLaren (J. A.). **North American blastomycosis.**—*Canad. med. Ass. J.*, 60, 1, pp. 26–32, 7 figs., 1949.

Nine cases of North American blastomycosis (*Blastomyces dermatitidis*) are reported from the Toronto General Hospital over the period from 1929 to 1948. The ages of the patients (one of whom was a female) ranged from 17 to 69. Notes on the histopathology of one case are included. The disease is probably more common in Canada than is generally recognized and should be suspected in obscure pulmonary affections and chronic ulcerative skin lesions.

1357. Singer (E.). **Two cases of fungous infection.**—*Chin. med. J.*, 66, 2, pp. 85–89, 1 fig., 1948.

A case of torulosis (*Torula histolytica* [*Cryptococcus neoformans*]) in a five-year-old girl is reported from the University Hospital, Nanking, the causal organism developing after four days' incubation on blood agar. It is emphasized that clinical diagnosis of the disease is almost impossible owing to its analogies with Japanese B encephalitis, tuberculous meningitis, and poliomyelitis.

In another case of generalized dermatophytosis in a 46-year-old male patient at the Central Hospital, Nanking, yeast-like organisms were isolated from the blood but were not identified.

1358. Neill (J. M.), Castillo (C. G.), Smith (R. H.), & Kapros (C. E.). **Capsular reactions and soluble antigens of Torula histolytica and of Sporotrichum schenckii.**—*J. exp. Med.*, 89, 1, pp. 93–106, 2 pl., 1948.

The reactions between antisera and the capsules of *Torula histolytica* (*Cryptococcus hominis* [*C. neoformans*]) and *Sporotrichum schencki*, herein described and tabulated, provide evidence that the capsules of these fungi contain serologically reactive substances. The ability of sera to induce the capsular reactions was shown to be related to their capacities to agglutinate suspensions and precipitate antigens of the respective fungi, and it was further demonstrated that the capsular reactivity is removed from the sera, in a specific manner, by absorption with soluble antigens derived from the particular fungus. These points establish the immunological nature of the capsular reactions of *C. neoformans* and *S. schencki* and place them in the same class of serological reactions as the commonly recognized capsular swelling. Evidence was obtained that the major antigens on the surface of encapsulated *C. neoformans* are polysaccharides.

The antisera obtained by immunization with *Oospora* strain 1936, which was highly reactive with the capsules of *C. neoformans*, also precipitated solutions of the purified capsular polysaccharide of the latter and agglutinated suspensions of all strains of the species tested. These cross-reactions are the first evidence of serological relationship between saprophytic *Oospora* and *C. neoformans*.

1359. Kligman (A. M.) & Weidman (F. D.). **Experimental studies on treatment of human torulosis.**—*Arch. Derm. Syph., Chicago*, 60, 5, pp. 726–741, 1949.

In experiments at the University of Pennsylvania School of Medicine, *Cryptococcus neoformans* was commonly isolated from the blood stream of mice inoculated with the fungus either intravenously or intraperitoneally. The lungs are invaded at least as frequently as the brain, and the generalized nature of the infection is apparent. All four strains of the pathogen used in the tests were killed in three minutes at 70° C., in ten at 50°, and in six days at 40°. The

possibility of fever therapy for human torulosis is discussed. Of the fungistatic compounds tested, certain thiocarbamate derivatives and antibiotics (especially actidione) gave the best results *in vitro*, but they were uniformly unsuccessful in the protection of mice against infection by *C. neoformans*.

1360. Kuhn (L. R.). **Effect of elevated body temperatures on cryptococcosis in Mice.**—*Proc. Soc. exp. Biol., N.Y.*, 71, 3, pp. 341–343, 1949.

At the Army Medical Department Research and Graduate School, Washington, D.C., many mice injected with a pathogenic (human) strain of *Cryptococcus neoformans* and maintained, with elevated body temperatures (101° to 105°, average 102·8° and 103·4° F.), at 35° to 36° C., outlived any of those kept at 24° to 27°. The results of these and previous *in vitro* studies (*Proc. Soc. exp. Biol. Med.*, 41, p. 573, 1939) suggest that a direct effect of temperature should be considered in explanation of the degree of natural resistance of rabbits (mean rectal temperature of 103·15° F.) to cryptococcosis. It is thought that the maintenance of elevated body temperatures might assist in the therapy of cryptococcosis.

1361. Daniel (P. M.), Schiller (F.), & Vollum (R. L.). **Torulosis of the central nervous system. Report of two cases.**—*Lancet*, 256, 6541, pp. 53–56, 4 figs., 1949.

Two fatal cases of torulosis (*Cryptococcus neoformans*) of the central nervous system are reported in male patients, one aged 54 and the other 50, at the Nuffield Department of Surgery, Radcliffe Infirmary, Oxford. The former patient was suffering from a diffuse meningo-encephalitis, while the latter had a circumscribed cerebellar 'toruloma', which was removed by a temporarily successful operation. The clinical picture of torulosis of the central nervous system closely resembles that of tuberculosis of the same region. The growth of six strains of the fungus in pure culture was not inhibited by penicillin, streptomycin, or any of the sulphonamides except soluthiazole (20 per cent.). Gentian violet was similarly effective at a dilution of 1 in 3,125,000.

1362. Hehre (E. J.), Carlson (A. S.), & Hamilton (Doris M.). **Crystalline amylose from cultures of a pathogenic yeast (Torula histolytica).**—*J. biol. Chem.*, 177, 1, pp. 289–293, 1 fig., 1949.

The substance responsible for the intensive blue coloration in response to iodine of cultures of the pathogenic yeast-like fungus *Torula* [*Cryptococcus*] *neoformans* has been isolated in crystalline form and identified as a polysaccharide [cf. Nos. 904, 905].

1363. Tager (M.), Hales (A. B.), & Danowski (T. S.). **Studies on the suppression of fungus growth by thiourea. III. The effects of protein fractions, amino acids, and thiol compounds.**—*J. infect. Dis.*, 84, 3, pp. 284–289, 1949.

The reversal of thiourea activity (in relation to *Cryptococcus hominis* [*C. neoformans*]) by human serum or plasma [Nos. 1110, 1111] appears to be connected with the non-albumin fraction. A similar change was observed following the addition to the medium of substances which provide or reconstitute the sulphydryl groupings, e.g., cysteine-hydrochloride (100 mg. per cent.), casein hydrolysate+cysteine (1,000+100), tetra-decylmercaptan (10), sodium hyposulphite (10:100), glutathione (23:140), and sodium thioglycollate (100).

1364. Evans (E. E.). **An immunologic comparison of twelve strains of Cryptococcus neoformans (Torula histolytica).**—*Proc. Soc. exp. Biol., N.Y.*, 71, 4, pp. 644–646, 1949.

At the School of Medicine, University of Southern California, Los Angeles, rabbits were immunized with nine strains of *Cryptococcus neoformans* isolated

from human infections. After 12 weekly series of injections, three strains produced agglutinin titres of 1:320, four gave titres ranging from 1:10 to 1:40, and two failed to produce antibodies. On the basis of reciprocal agglutinin absorptions three serological types of the fungus are differentiated under the designations of A, B, and C.

1365. Brandstaetter (S.) & Levitus (Z. A.). **Torula meningitis.**—*Harefuah* (*J. med. Ass. Israel*), *1949*, 4, p. 18, 1949.

Torula histolytica [*Cryptococcus neoformans*] was isolated from the lumbar fluid of a 68-year-old male patient at the Central Emek Hospital, Affula, Israel. Another case of this rare disease, of which there were only 108 records in the literature up to 1946, was admitted to the children's department of the hospital at the same time.

1366. Drouhet (E.) & Segretain (G.). **Action de hyaluronidase sur la capsule de Torula histolytica.** [Action of hyaluronidase on the capsule of *Torula histolytica*.]—*C.R. Acad. Sci., Paris*, 228, 5, pp. 424–425, 1949.

In the presence of a minimum quantity of hyaluronidase of 150 V.R.U. per c.c. the thickness of the capsule of a mucous strain of *Torula histolytica* [*Cryptococcus neoformans*], derived from a smooth culture isolated on Sabouraud's agar from a case of meningitis, was reduced from 6·5 to 1·7 μ.

1367. O'Neill (F. J.), Newcomb (A. L.), & Neilsen (C. S.). **Cryptococcus meningitis : report of a case.**—*U.S. nav. med. Bull.*, 49, 2, pp. 300–305, 1949.

The diagnosis of cryptococcal meningitis, a rare disease apt to be confused clinically with meningeal tuberculosis, rests on the detection of budding yeast-like organisms in fresh spinal fluid or on their culture. In the authors' 49-year-old male patient early diagnosis and therapy with sulphonamides, penicillin, and autogenous vaccines were followed by a marked clinical improvement. The cultural characters of the causal organism do not appear to correspond with any of the 14 species of *Cryptococcus* listed by Dodge in his 'Medical Mycology', indicating the possible involvement of an undescribed strain.

1368. Radice (J. C.) & Kaplan (S.). **Blastomicosis par Paracoccidioides brasiliensis. Estudio anatomopatológico y coloración fluorescente del parásito.** [Blastomycosis due to *Paracoccidioides brasiliensis*. Anatomo-pathological study and fluorescent coloration of the parasite.]—*Rev. Asoc. méd. argent.*, 63, 647–648, pp. 61–66, 8 figs., 1949.

The writers summarize the available information on the geographical distribution, predisposing causes, virulence, clinical aspects, morphology of the parasite, and pathogenicity of Brazilian blastomycosis (*Paracoccidioides brasiliensis*), and fully describe their anatomo-pathological study of a visceral form of the disease. The fungus may be detected in the tissues by means of fluorescent stains, e.g., primulin [No. 1370].

1369. Lacaz (C. da S.) & de Oliveira (E.). **Blastomicose da região ano-retal. Considerações sôbre dois casos.** [Blastomycosis of the ano-rectal region. Considerations on two cases.]—*Hospital, Rio de J.*, 33, 6, pp. 845–854, 3 figs., 1948. [*T.D.B.*, 46, 84.]

After referring to two cases of South American blastomycosis, reported in 1930 and 1940, in which lesions which may have been primary were present in the ano-rectal region, the authors describe two new cases with lesions in this area and point out the probable association of infection with the use, in the toilet of the anus, of leaves and other raw vegetable matter which may carry *Paracoccidioides brasiliensis*. The authors are satisfied that this was so in two of the cases referred to. Treatment with sulphadiazine supplemented by a fungal vaccine proved effective.

1370. Radice (J. C.) & Negroni (P.). **Coloración fluorescente mediante la primulina. Estudio histológico en diversas micosis.** [Fluorescent coloration by means of primulin. Histological study of various mycoses.]—*Rev. Asoc. méd. argent.*, 62, 643–644, pp. 731–733, 14 figs., 1948.

Fluorescent microscopy has been found valuable for the study of the internal structure of the spherules of the parasitic phase of *Coccidioides immitis* and *Paracoccidioides brasiliensis* and of club formation in species of *Actinomyces*. Omitting details the technique is as follows. The sections are cut in paraffin and then immersed in xylol for 24 hours, passed through alcohol to water, washed in running water for some minutes, treated for 15 minutes with a solution of 5 per cent. phosphomolybdic acid, dipped for two minutes in 90 per cent. alcohol, again washed in running water, and stained for 24 hours in a solution of primulin, a fluorescent dye, at 1 in 10,000, followed by dehydration and mounting in Canada balsam. The specimen is then examined by ultra-violet rays.

1371. Mundt (L. K.) & Moore (M.). **Chromomycosis : report of a case from Louisiana with a discussion of its clinical and mycologic features.**—*N.O. med. surg. J.*, 100, 12, pp. 558–565, 8 figs., 1948.

In connexion with a report on a case of chromomycosis (*Phialophora pedrosoi*), believed to be the first from Louisiana, in an 81-year-old male patient at the Touro Infirmary, New Orleans, the authors review the available information on the geographical distribution, histology, mycology, clinical features, types, course, pathology, and treatment of the disease.

1372. Montemayor (L.). **Propriedades biológicas diferenciales de los agentes de cromomicosis.** [Differential biological properties of the agents of chromomycosis.]—*An. Inst. Hig. Montevideo*, 2, 1, pp. 32–35, 1948. [English summary.]

Two strains of *Phialophora verrucosa* from the United States, *P. compacta* from Venezuela, Moore's original strain of *Phialoconidiophora guggenheimia*, and *Phialophora pedrosoi* from Brazil, agents of chromo[blasto]mycosis [No. 1234], were shown by the author's experiments to possess the same biological properties. All utilize glucose, maltose, saccharose, and galactose, as well as peptone and asparagine, and their optimum temperature is 37° C. These results are regarded as a confirmation of Thom's (*J. Wash. Acad. Sci.*, 30, pp. 49–64, 1940) and Langeron's [*R.A.M.*, 25, p. 363] views as to the amalgamation of these fungi in one genus.

On the other hand, *P. jeanselmei* [No. 650], an agent of maduromycosis, utilizes all five nitrogenous compounds tested besides the above-mentioned carbohydrates, and its optimum temperature is 30°. Contaminants of the *Hormodendrum* type utilize all the carbohydrates and nitrogenous compounds investigated, and their optimum temperature is 20° to 25°.

1373. Bass (H. E.), Schomer (A.), & Berke (R.). **Coccidioidomycosis : persistence of residual pulmonary lesions.**—*Arch. intern. Med.*, 82, 6, pp. 519–528, 7 figs., 1948.

Twenty ex-military personnel of the Second World War with residual lesions of pulmonary coccidioidomycosis (*Coccidioides immitis*) have been observed in New York City and 13 cases are here described. The lesions persisted from two to five years after the initial infection. The importance of differential diagnosis between coccidioidomycosis and other pulmonary diseases, notably tuberculosis, is emphasized.

1374. Evans (A. N.), Andy (O. J.), & Labarge (O. J.). **Disseminated coccidioidomycosis : report of a case in Louisiana.**—*N.O. med. surg. J.*, 101, 11, pp. 525–529, 1949.

The third case of widely disseminated coccidioidomycosis (*Coccidioides immitis*) occurring in Louisiana is presented, the patient being a 23-year-old negro at the Veterans Administration Hospital, Alexandria, with a diagnosis of pulmonary tuberculosis. Infection was probably contracted while the subject was working as a fruit-picker and handler in an endemic region of California, and was apparently confined entirely to the respiratory tract for more than a year. A period of relative quiescence was followed by right pleural involvement, extensive dissemination, and death. The post-mortem findings are described in detail. Racial factors may be responsible for the strong tendency to widespread dissemination, with resultant relatively high mortality, occurring in cases of coccidioidomycosis in the negro. Because of the frequency and extent of travel, and the training of many thousands of military personnel in endemic areas during the late war, coccidioidomycosis may now be encountered in the practice of physicians in any part of the United States.

1375. Mackinnon (J. E.). **El granuloma coccidióidico en América del Sur.** [Coccidioidal granuloma in South America.]—*An. Inst. Hig. Montevideo*, 2, 1, pp. 74–84, 3 figs., 1949. [English summary.]

A fatal case of coccidioidal granuloma (*Coccidioides immitis*) in a 25-year-old male is reported from Bolivia, bringing the total for South America to six. The distribution of the known cases indicates that the endemic focus of the disease covers a very wide range, extending from the zone of Chaco in Paraguay to central Argentina and perhaps even farther south.

1376. Negroni (P.). **Estudios sobre el Coccidioides immitis Rixford y Gilchrist. I. Micelio vegetativo y fructificación. II. Estudio micológico de las cepas autóctonas y revisión del granuloma coccidioídico en la Argentina.** [Studies on *Coccidioides immitis* Rixford & Gilchrist. I. Vegetative mycelium and fructification. II. Mycological study of the autochthonous strains and review of coccidioidal granuloma in Argentina.]—*Rev. argent. Dermatosif.*, 32, 1–2, pp. 50–65, 11 figs., 1948. [French and English summaries.]

On solid media *Coccidioides immitis* produces a vegetative and a fertile mycelium, the former aerial (superficial or prostrate) and submerged or deep, while the latter develops as branches of the aerial. The vegetative mycelium is sparsely septate, 1·4 to 5 μ in diameter, occasionally ribbon-like, and presents the following special elements: intercalary or terminal chlamydospores averaging 15 μ in diameter, racquet mycelium, appressoria, funicula, vegetative clamp-connexions, and rudimentary sclerotia, 1 to 2 mm. in diameter.

The fertile mycelium originates with the demarcation of single or branched 'proconidia', occasionally bearing a pedicel or sporophore-like formation and dividing basipetally to produce a row of cells, of which one is fertile and the following abortive or sterile. The apical cell is invariably fertile. The fertile cells are entospores with an average dimension of 4·5 by 3·5 μ, liberated by the rupture of the hyphal walls at the site of empty cells which function as disjunctors.

Up to the present seven cases of coccidioidomycosis (two still unpublished) have been reported in Argentina. The mycological characters of the three Argentine strains are identical with those of the North American, the colonies being velvety or floccose, white, zonate or hemizonate and the elements formed by the vegetative mycelium as described above. The fungus utilizes monosaccharides and sodium acetate in preference to other sources of carbon. Ammonium chloride is the simplest source of nitrogen for satisfactory growth. The Argentine strains are proteolytic and one of them haemolyses the red blood corpuscles of the rabbit.

1377. Negroni (P.). **Estudios sobre el Coccidioides immitis. III. Estudio micológico comparativo de las cepas argentinas y norte americanas.** [Studies on *Coccidioides immitis*. III. Comparative mycological study of Argentine and North American strains.]—*Rev. argent. Dermatosif.*, 32, 3–4, pp. 219–231, 4 figs., 1948. [French and English summaries.]

Three Argentine and seven North American isolates of *Coccidioides immitis* were very similar in their morphological and physiological characters. The colonies are velvety or cottony, whitish, and zonate or hemizonate. On solid mineral media with 1 per cent. fat some strains produce a brown mycelium. Mineral media, e.g., Czapek's or Stanford's, promote entospore formation. Monosaccharides and sodium acetate are the best sources of carbon for *C. immitis*, the various strains of which utilize animal or vegetable fats and simple sources of nitrogen, such as ammonium chloride. They are proteolytic and some strains haemolyse rabbit red blood corpuscles. The optimum temperature for development is about 30° C. The eleventh isolate studied was morphologically and physiologically distinct from *C. immitis*, having the *Scopulariopsis* type of conidial fructification.

1378. Negroni (P.) & Vivoli (D.). **Estudios sobre el Coccidioides immitis. IV. Virulencia de las cepas y su relación con los caracteres micológicos.** [Studies on *Coccidioides immitis*. IV. Virulence of the strains and its relation to the mycological characters.]—*Rev. argent. Dermatosif.*, 32, 3–4, pp. 239–244, 1 fig., 1948. [English and French summaries.]

The pathogenicity to guinea-pigs of three Argentine and eight North American isolates of *Coccidioides immitis* [see preceding entry] was investigated and found to be irregular. The survival time and extent of the lesions were not related to the quantity of inoculum per unit of weight, nor could any relationship be determined between pathogenicity and mycological characters.

1379. Negroni (P.), Daglio (C. A. N.), & Briz de Negroni (C.). **Estudios sobre el Coccidioides immitis Rixford y Gilchrist. V. Primera investigación sobre la existencia de una endemia de coccidioidomicosis en la Argentina.** [Studies on *Coccidioides immitis* Rixford & Gilchrist. V. First investigation on the existence of an endemic of coccidioidomycosis in Argentina.]—*Rev. argent. Dermatosif.*, 32, 3–4, pp. 250–263, 1 graph, 7 maps, 1948. [English and French summaries.]

The occurrence of a case of disseminated coccidioidomycosis (*Coccidioides immitis*) in Rio Negro County, where the patient had resided for the last few years, led to the first inquiry into the endemiology of the disease in Argentina. Intradermal tests with coccidioidin diluted to 1 in 100, standardized with the Stanford type, were performed on 2,065 schoolchildren in six localities, but only 1,834 readings were practicable, which yielded the following data: General Conesa 7·48 per cent. positive and 1·57 per cent. doubtful; Rio Colorado 10·26 and 5·41, respectively; Choele Choel 7·56 and 4·53; Stefenelli and General Roca 1 and 1·66; and Neuquen 4·34 and 5·63. No correlation could be traced between positive reaction and sex, but there was a noticeable connexion with age, the maximum number of positive reactors being about 11 years old. The endemic zone lies within the steppe climate. Irrigation of the soil is proposed as a means of eliminating the endemic focus of infection.

1380. Negroni (P.) & Briz de Negroni (C.). **Estudios sobre Coccidioides immitis Rixford y Gilchrist. VI. Segunda contribución al estudio de la endemia coccidioidomicotica argentina.** [Studies on *Coccidioides immitis* Rixford & Gilchrist. VI. Second contribution to the study of the Argentine coccidioidomycotic endemic.]—*Rev. argent. Dermatosif.*, 32, 3–4, pp. 264–266, 1948. [English and French summaries.]

A second inquiry into the endemiology of coccidioidomycosis (*Coccidioides immitis*) in Argentina [see preceding entry] was conducted on 305 adult patients in the Ramos Mejía Hospital, Buenos Aires, suffering from non-mycotic complaints. Positive reactions were obtained in 8·19 per cent. of the cases. The majority originated in the south and west of the Province of Buenos Aires, in the arid zones of the steppe, and in the mountains and rural districts.

1381. Bass (H. E.), Schomer (A), & Berke (R.). **Question of contagion in coccidioidomycosis. Study of contacts.**—*Amer. Rev. Tuberc.*, 59, 6, pp. 632–635, 1949. [Spanish summary.]

Eleven contacts of patients with cavitary pulmonary coccidioidomycosis (*Coccidioides immitis*) and one with a disseminated form of the disease were studied with chest roentgenograms and coccidioidin skin tests. Negative results were obtained in all cases, indicating that none of the contacts had contracted infection during a period of 6 to 60 months of exposure. Further clinical evidence also appears to point to the non-transmissibility of coccidioidal infection from man to man.

1382. Taylor (A. B.) & Briney (A. K.). **Observations on primary coccidioidomycosis.**—*Ann. intern. Med.*, 30, 6, pp. 1224–1236, 5 figs., 1 graph, 1949.

Observations are presented on 43 cases of primary coccidioidomycosis (*Coccidioides immitis*) seen at the Station Hospital, Williams Air Field, Chandler, Arizona, during 1946–7. They are concerned with length and severity of exposure, symptoms, physical and laboratory findings, and subsequent follow-up studies in 22 cases. The roentgenological data are classified and described according to types, and reference is made to the frequency of incomplete resolution. The occurrence of dysphagia as an important diagnostic aid is mentioned. Three cases in which positive Kahn tests developed incidental to coccidioidal infection are briefly described. The relative mildness of the disease and early symptomatic recovery of the patient are discussed.

1383. Hyde (B.) & Hyde (L.). **Disseminated coccidioidomycosis and lymphohaematogenous tuberculosis.**—*Arch. intern. Med.*, 83, 5, pp. 505–514, 1 fig., 1949.

A case of co-existing disseminated coccidioidomycosis (*Coccidioides immitis*) and disseminated lymphohaematogenous miliary tuberculosis is reported from the Bellevue Hospital, New York, the patient being a 21-year-old male resident in California, who had spent five months in the San Joaquin Valley and one month in Arizona where the disease is endemic. This is believed to be the first of its kind on record. During life smears and cultures made from aspirated gastric contents revealed acid-fast bacilli and those from subcutaneous abscesses on the left foot yielded *C. immitis*. At autopsy both *Mycobacterium tuberculosis* and *C. immitis* were present in the lungs, omentum, and peritoneum, the latter also being present alone in the left shoulder joint, left ankle, skull, pleura, and subcutaneous abscesses.

1384. Beadenkopf (W. G.), Loosli (C. G.), Lack (H.), Rice (F. A.), & Slattery (R. V.). **Tuberculin, coccidioidin, and histoplasmin sensitivity in relation to pulmonary calcifications. A survey among 6,000 students at the University of Chicago.**—*Publ. Hlth Rep., Wash.*, 64, 1, pp. 17–32, 2 graphs, 3 maps, 1949.

The present report on the relation of tuberculin, coccidioidin [*Coccidioides immitis* antigen], and histoplasmin [*H[istoplasma] capsulatum* antigen] to pulmonary calcifications in a population of diverse origin (including several hundred foreigners) confirms the results of other recent surveys. It was found

that (*a*) the prevalence of tuberculin sensitivity increased progressively from 10 per cent. among the youngest age-group (15 to 19 years) to 57 per cent. in the oldest (50); (*b*) the rate of histoplasmin sensitivity began at 10 per cent. in the former and reached 38 per cent. in the latter group; (*c*) pulmonary calcifications were associated twice as frequently with histoplasmin (29 per cent.) as with tuberculin sensitivity (14); and (*d*) the prevalence of both histoplasmin sensitivity and pulmonary calcifications was highest in the Lower Mississippi Basin. Owing to the small number (4 per cent.) of students reacting positively to coccidioidin, the calcification rate recorded for this group (19 per cent.) is not reliable.

1385. González Ochoa (A.), Esquivel Medina (E.), & Cáceres (M.). **Investigación de la reactividad cutanea a la histoplasmina, tuberculina y coccidioidina, relacionada con catastro torácico en Yucatan.** [Investigation of cutaneous sensitivity to histoplasmin, tuberculin, and coccidioidin in relation to chest X-rays in Yucatan.]—*Rev. Inst. Salubr. Enferm. trop.*, 9, 1, pp. 55–63, 2 pl., 1948. [*B.H.*, 23, 957].

In 150 cases studied in different towns of Yucatan, Mexico, 55·3 per cent. were positive to histoplasmin [*Histoplasma capsulatum* antigen], 23·3 per cent. to tuberculin, and none to coccidioidin [*Coccidioides immitis* antigen]. Chest X-rays showed three cases of pulmonary calcification and one of cavity lesion in histoplasmin-positives and tuberculin-negatives.

1386. Firestone (G. M.) & Benson (E. S.). **Coexisting disseminated coccidioidomycosis and tuberculosis.**—*Amer. Rev. Tuberc.*, 59, 4, pp. 415–428, 4 figs., 1949. [*T.D.B.*, 46, 870–871.]

Details are presented of a case of coccidioidomycosis [*Coccidioides immitis*] of six years' duration, complicated by active tuberculosis, both diseases apparently occurring coincidentally. The individual coccidioidal granulomata were devoid of acid-fast bacilli, and the tubercles contained only few *Coccidioides* spherules at the periphery. The coccidioidomycosis terminated in a miliary dissemination throughout the body, while the tuberculosis presented a secondary or adult type of distribution in the lungs, pharynx, and bowel, with a haematogenous dissemination to the seminal vesicles. Streptomycin was of value in controlling the tuberculosis, but did not affect the coccidioidomycosis, some manifestations of which appeared to be reduced by potassium iodide and vitamin D_2 in massive doses.

1387. Duemling (W. W.). **Progressive disseminated coccidioidomycosis.**—*Arch. Derm. Syph., Chicago*, 60, 5, pp. 781–789, 5 figs., 1949.

Full details are given of the clinical course and post-mortem observations in two cases of progressive disseminated coccidioidomycosis (*Coccidioides immitis*), both males from San Diego, California, one a 32-year-old Mexican Indian and the other a 20-year-old American negro.

1388. Miller (D.) & Birsner (J. W.). **Coccidioidal granuloma of bone.**—*Amer. J. Roentgenol.*, 62, 2, pp. 229–236, 9 figs., 1949.

Of 17 proved cases of coccidioidal granuloma (*Coccidioides immitis*) of bone treated at the Kern General Hospital, Bakersfield, California, between July, 1942, and October, 1947, eight were negroes, four Filipinos, three white, one Mexican, and one Chinese. The lesions are most frequently observed in the third and fourth decades; the youngest patient in this series was nine and the oldest 69. Roentgen findings are principally osteolytic, with occasional sclerosis, while in some cases there are linear calcifications in the soft tissues adjacent to bone. In many patients with disseminated coccidioidomycosis the primary lung involvement can no longer be demonstrated.

A negative coccidioidin skin test may be of little or no value in making a diagnosis of osseous coccidioidal granuloma. Serological examination is important in determining the presence of disseminated coccidioidomycosis, while the existence of the disease may be confirmed by cultures, biopsies, and autopsy specimens.

1389. Cohen (R.). **Coccidioidomycosis. Case studies in children.**—*Arch. Pediat.*, 66, 6, pp. 241–265, 10 figs., 1949.

Ten cases of coccidioidomycosis (*Coccidioides immitis*) in children between six months and 12 years of age are reported from the Kern General Hospital, Bakersfield, California, to illustrate a variety of forms of the disease repeatedly encountered in the heart of an endemic area.

1390. Smale (L. E.) & Birsner (J. W.). **Maternal deaths from coccidioidomycosis.**—*J. Amer. med. Ass.*, 140, 14, pp. 1152–1154, 1949.

Four fatal cases (two in negresses) of coccidioidomycosis (*Coccidioides immitis*) in pregnancy, with meningeal involvement in three, are reported from the Kern General Hospital, Bakersfield, California.

1391. Tovar (R. M.) & Ramirez (S.). **Coccidioidomicosis en México. I. Determinación de reactores alérgicos.** [Coccidioidomycosis in Mexico. I. Determination of allergic reactors.]—*Rev. méd. Hosp. gen., 1947*, 9, pp. 621–630, 1947. [Abs. in *Excerp. med.* (Sect. XIII), 3, 1, p. 40, 1949].

Among 1,100 patients at the General Hospital of Mexico City injected intradermally with coccidioidin (*Coccidioides*) [*immitis* antigen] and *Blastomyces* [*dermatitidis*] antigen, 5·1 per cent. allergic positive reactors (mostly field workers) were discovered. Multiple cold abscesses in this latitude are probably more often due to *C. immitis* than to tuberculosis, and in such cases a careful investigation should be made of both possibilities, always including the allergic determination.

1392. Houck (G. H.). **Ubiquitous mycoses.**—*Amer. J. Med.*, 3, 6, pp. 663–664, 1947.

In this editorial article the author stresses the importance of closer vigilance on the part of physicians in respect of coccidioidomycosis [*Coccidioides immitis*] and histoplasmosis [*Histoplasma capsulatum*], the distribution of which in the United States is much wider than was originally supposed. Outstanding recent advances in the knowledge and management of the diseases are briefly outlined.

1393. Mantz (H. L.). **Histoplasmosis.**—*N.O. med. surg. J.*, 101, 7, pp. 328–332, 1949.

The principal facts and theories relating to histoplasmosis (*Histoplasma capsulatum*) are summarized as follows in the light of 17 contributions to the relevant literature. The histoplasmin skin test appears to be reliable and the complement-fixation test promising. Known cases of histoplasmosis have recovered and are in good health. The necessity of careful differential diagnosis of histoplasmosis and tuberculosis is emphasized, since some proved cases of the former disease present every appearance of the latter. North-east Louisiana is an area of high incidence for histoplasmin sensitivity.

1394. Bras (G.), Rijkebüsch (L.), Kotter (G. F.), & Djoa Liang Ham. **Clinical, pathological and mycologicoal observations.**—*Docum. neerl. indones. Morb, trop.*, 1, 2, pp. 151–159, 8 figs., 1949.

The fatal case of histoplasmosis (*Histoplasma capsulatum*), combined with tuberculous pneumonia, on which these observations are based occurred in a 43-year-old Java-born Chinese male patient at the Jang Seng I^{e} Hospital.

Batavia. Blood agar, kept moist and incubated at 37° C., proved to be the best medium for the culture of the yeast-like forms of the fungus, but slow growth of the mycelial form takes place on other media at 28°, culminating in the formation of tuberculated chlamydospores. Giemsa's stain was more reliable than Gram's for the demonstration of *H. capsulatum* from smears.

1395. Lurie (H. I.). **Benign histoplasmosis. A preliminary report on the results of histoplasmin skin tests on residents of the Union of South Africa.**—*S. Afr. med. J.*, 23, 10, pp. 180–181, 1949.

Of 140 white residents of the Union of South Africa subjected to histoplasmin (*Histoplasma capsulatum* antigen) skin tests, 17 (12 per cent.) gave positive or doubtful reactions. Of these, ten were males, five between 15 and 25, four between 25 and 40, and one over 40. Of the seven females, six were between 15 and 25 and one between 25 and 40.

1396. Di Pietro (A.), Niño (F. L.), & Costa (L. P.). **Histoplasmosis o reticulo-histiocitosis parasitaria con localización lingual.** [Histoplasmosis or parasitic reticulo-histiocytosis localized on the tongue.]—*Rev. Asoc. méd. argent.*, 63, 653–654, pp. 229–231, 6 figs., 1949. [*T.D.B.*, 46, 968.]

An account is given of a clinical and histopathological study of a case of localized Darling's histoplasmosis or parasitic reticulo-histiocytosis of the tongue in a male 52 years old, caused by *Histoplasma capsulatum*, the fourth record of the disease in Argentina.

1397. Cawley (E. P.) & Curtis (A. C.). **Histoplasmosis and lymphoblastoma. Are these diseases related?**—*J. invest. Derm.*, 11, 6, pp. 443–453, 4 figs., 1948.

This is a review and discussion of four cases of co-existent histoplasmosis (*Histoplasma capsulatum*) and lymphoblastoma reported in the relevant literature, one from Austria and the others from the United States [No. 1169]. The reticulo-endothelial system is involved in both diseases and a mutual relationship is suggested by their microscopic pathology. The available evidence seems to indicate that lymphoblastoma may predispose to histoplasmosis. An actual transition from one to the other, though not excluded, appears unlikely.

1398. Love (S. V.). **Histoplasmosis in infancy.**—*Kentucky med. J.*, 47, 2, pp. 50–54, 1949.

The available information on histoplasmosis (*Histoplasma capsulatum*) is summarized and discussed under various aspects, including geographical distribution, clinical picture, pathology and cultural characters of the fungus, laboratory diagnosis, and treatment.

1399. Pryor (Helen B.). **Histoplasmosis in California children.**—*J. Pediat.*, 34, 1, pp. 12–19, 5 figs., 1949.

A review of the current status of histoplasmosis (*Histoplasma capsulatum*) is presented, and attention is drawn to the probability of widespread infection by a mild or subclinical form of the disease. The case histories of five children with multiple pulmonary calcifications are summarized; all are tuberculin-negative and histoplasmin-positive to intradermal tests.

1400. Jelliffe (D. B.). **Histoplasmosis of Darling (reticulo-endothelial cytomycosis).**—*J. trop. Med.* (*Hyg.*), 52, 9, pp. 177–182, 1 fig., 1949.

Following a review of the literature on the history, geographical distribution, mode of infection, mycology, gross pathology, symptomatology, diagnosis, and therapy of histoplasmosis (*Histoplasma capsulatum*), the author describes a case in a 35-year-old northern Sudanese male patient at the Wad Medani Hospital, Blue Nile Province, Sudan.

1401. Stewart (C. B.). **Histoplasmin sensitivity in the Maritime Provinces and Newfoundland.**—*Canad. J. publ. Hlth*, 40, 4, pp. 178–182, 1949.

Histoplasmin (*Histoplasma capsulatum* antigen) tests were performed on 310 Dalhousie University students, mostly males. Positive reactions were observed in four men (1·3 per cent.), all of whom had been part-time residents outside the Maritime Provinces or Newfoundland.

1402. Guy (R.), Roy (O.), Poupart (G.), & Panisset (M.). **Histoplasmin sensitivity. Preliminary observations in a group of schoolchildren in the Province of Quebec.**—*Canad. J. publ. Hlth*, 40, 2, pp. 68–71, 1949.

Histoplasmin (*Histoplasma capsulatum* antigen) skin tests were performed, concurrently with tuberculin tests, on 75 schoolchildren in the Province of Quebec, and chest X-rays taken of the positive reactors. Twenty children reacted positively to histoplasmin, of whom ten responded similarly to tuberculin. No relation was found between the histoplasmin and tuberculin reactions. Of the nine subjects presenting pulmonary calcifications, three were negative to tuberculin.

1403. Guy (R.), Panisset (M.), & Frappier (M.). **Histoplasmin sensitivity. II. A brief study of the incidence of hypersensitivity to histoplasmin in an Indian tribe of northern Quebec.**—*Canad. J. publ. Hlth*, 40, 7, pp. 306–309, 1949.

Histoplasmin skin tests with histoplasmin [*Histoplasma capsulatum* antigen] 1/1,000 were performed on 161 Indians of a reserve situated in the Abitibi-East County, in the extreme north of Quebec. There were eight positive reactors. Within the 5- to 15-year age-group, 20 children (26·5 per cent.) reacted positively to histoplasmin at a location in the south of the county, compared with only one (1·5 per cent.) at a place in the north. Of the 20 positive reactors in the south, 10 were similarly allergic to tuberculin, as was also the one child sensitive to histoplasmin in the north. These limited data on the geographical distribution of histoplasmin sensitivity in the Province of Quebec tend to confirm the law of prevalence, as expressed by Palmer [No. 736], governing the same condition in the United States.

1404. Tassinari (G.). **La sensibilità cutanea all' istoplasmina : primi resultati in Italia. Nota preventiva.** [Cutaneous sensitivity to histoplasmin: first results in Italy. Preliminary note.]—*Settim. med.*, 36, 9–13, pp. 90–92, 1948. [Abs. in *Dermatol. & Venereol.* (*Excerp. med.*, Sect. XIII), 3, 5, p. 258, 1949.]

In tests to determine the allergic activity of an extract of *Histoplasma capsulatum* (histoplasmin) on the human skin, 24 per cent. of the reactions were positive. The relationship between histoplasmin and intradermal tuberculin is discussed, and it is concluded that the two antigens show evident specificity.

1405. Cancela Freijo (J.). **Histoplasmosis de Darling. Segundo caso observado en el Uruguay.** [Darling's histoplasmosis. A second case observed in Uruguay.] —*Hoja fisiol.*, 7, 3, pp. 207–211, 7 figs., 1947. [*T.D.B.*, 46, 869.]

The author records the second occurrence of Darling's histoplasmosis [*Histoplasma capsulatum*] in Uruguay, reported from Montevideo.

1406. Kuzma (J. F.) & Schuster (M.). **Histoplasmosis-reticulo-endothelial cytomycosis.**—*Wis. med. J.*, 45, 6, pp. 591–595, 2 figs., 1946.

A case of histoplasmosis (*Histoplasma capsulatum*) is reported from Wisconsin, the first for the State [see next entries]. The subject was a 65-year-old male, born in Alsace-Lorraine but resident at Milwaukee for 38 years. Notes are given on the disease and its diagnosis.

1407. Kuzma (J. F.). **Histoplasmosis—the pathologic and clinical findings.**—*Dis. Chest*, 13, 4, pp. 338–344, 1947. [Spanish summary.]

The pathological and clinical aspects of histoplasmosis (*Histoplasma capsulatum*) are summarized in the light of some outstanding contributions to the relevant literature. Some 80 cases have been reported from the United States, including two associated with Wisconsin, one of which has already been described by the author and Schuster and the other by Swan and Finnegan [see preceding and next entries].

1408. Swan (L. L.) & Finnegan (J. V.). **Histoplasmosis; report of case with autopsy.**—*Wis. med. J.*, 45, 8, pp. 763–765, 1946.

A case of histoplasmosis (*Histoplasma capsulatum*) in a 49-year-old male patient at the Fitzsimons General Hospital, Denver, Colorado, is reported, infection having apparently been contracted in Wisconsin [see preceding entries]. The adrenal pathology closely resembled that of tuberculosis. Inoculation experiments on mice resulted in the development of typical symptoms.

1409. Armstrong (J. W.). **Histoplasmosis: study of reactors to histoplasmin.**—*Amer. J. publ. Hlth*, 39, 9, pp. 1136–1140, 1949.

The results of skin tests with tuberculin and histoplasmin (*Histoplasma capsulatum* antigen) at Berea College, Madison County, Kentucky, are tabulated and briefly discussed. The finding of 50 per cent. positive reactors to histoplasmin further confirms this area as one infected by the fungus. A significant number of students reacting negatively to tuberculin but positively to histoplasmin showed lung calcification. Prolonged studies on young children in the locality are essential to determine the symptomatology of subclinical histoplasmosis.

1410. Rawson (A. J.). **Acid-fast property of Histoplasma capsulatum.**—*Amer. J. clin. Path.*, 18, 1, p. 97, 1948.

In histological studies on *Histoplasma capsulatum* at the University of Pennsylvania Hospital, Philadelphia, a modified Ziehl-Neelsen carbol-fuchsin stain, using 3 per cent. aqueous hydrochloric acid instead of acid alcohol for decolorization, gave results comparable to those obtained with the Giemsa reagent. It should be noted that only a variable fraction of the number of forms actually present were acid-fast.

1411. Rawson (A. J.), Collins (L. H.), & Grant (J. L.). **Histoplasmosis and torulosis as causes of adrenal insufficiency.**—*Amer. J. med. Sci.*, 215, 4, pp. 363–371, 5 figs., 1948.

Following a review of cases of histoplasmosis (*Histoplasma capsulatum*) and torulosis (*Cryptococcus neoformans*) with adrenal involvement from the relevant literature, the authors describe two of their own from the Hospital of the University of Pennsylvania, Philadelphia. Both patients were females, one 62 and the other 41 years old, the former suffering from histoplasmosis and the latter from torulosis. These cases are believed to be the first of adrenal insufficiency resulting from torulosis and the ninth in which the condition arose from histoplasmosis.

1412. Saslaw (S.) & Campbell (Charlotte C.). **A comparison between histoplasmin and blastomycin by the collodion agglutination technique.**—*Publ. Hlth Rep., Wash.*, 64, 9, pp. 290–294, 1949.

Collodion particles sensitized with either histoplasmin or blastomycin were used in agglutination studies. Specific *Histoplasma capsulatum* rabbit sera strongly agglutinated collodion suspensions sensitized with histoplasmin and

also reacted to a lesser degree with blastomycin-treated particles. *Blastomyces dermatitidis* antisera reacted in low dilutions with blastomycin-coated particles and gave weaker or negative agglutination reactions when histoplasmin was used as an antigen. Rabbit sera prepared against *B.* [*Paracoccidioides*] *brasiliensis*, *Sporotrichum schencki*, *Cryptococcus neoformans*, and *Candida albicans*, as well as normal sera, did not usually agglutinate collodion particles sensitized with either histoplasmin or blastomycin. Six different lots of histoplasmin were compared and found applicable to the collodion agglutination test.

1413. Saslaw (S.) & Campbell (Charlotte C.). **A collodion agglutination test for histoplasmosis.**—*Publ. Hlth Rep., Wash.*, 64, 13, pp. 424–429, 1949.

The use of the collodion agglutination test for the detection of antibodies in human sera showed that collodion particles sensitized with histoplasmin (*Histoplasma capsulatum* antigen) were agglutinated strongly (4+) in the presence of sera from three patients in the acute phase of histoplasmosis. Weak (possibly non-specific) 1+ or 2+ agglutinations were observed in low dilutions in 30·4 per cent. of a group of 197 healthy volunteers. Of the 60 persons giving weak agglutinations, 25 were from the positive skin test group of 71 and 35 from the negative skin test group of 126. Similarly, 32·3 per cent. of 235 serum specimens from persons not subjected to a skin test gave weak, non-specific agglutinations. The correlation between skin and serum agglutination tests appears to be masked in normal persons by non-specific reactions. The results obtained in the collodion agglutination test parallel those observed with yeast-phase antigens in the complement-fixation experiment.

1414. Campbell (Charlotte C.) & Saslaw (S.). **Use of yeast-phase antigens in a complement fixation test for histoplasmosis. III. Preliminary results with human sera.**—*Publ. Hlth Rep., Wash.*, 64. 18, pp. 551–560, 1949.

In complement-fixation tests for histoplasmosis, four-hour incubation periods at 3° to 6° C., using ground yeast-like phase antigens of *Histoplasma capsulatum*, proved less likely to yield non-specific reactions than those of 18 hours' duration. Sera from three cases of acute histoplasmosis fixed complement in high titre, whereas those from three chronic cases did not differ appreciably from the titres found in a small proportion (5·9 to 7·7 per cent.) of the 'normal' population. In a group of 207 volunteers, humoral antibodies occurred in 10 out of 73 skin test-positive persons and in 6 out of 134 of those reacting negatively to the skin test. Skin-testing with histoplasmin did not incite any antibody response that could be detected 20 days after the test. The cross-reaction between *H. capsulatum* and *Blastomyces dermatitidis* was further demonstrated.

1415. Smith (C. E.), Saito (Margaret T.), Beard (R. R.), Rosenberger (H. G.), & Whiting (E. G.). **Histoplasmin sensitivity and coccidioidal infection. I. Occurrence of cross-reactions.**—*Amer. J. publ. Hlth*, 39, 6, pp. 722–736, 3 graphs, 1 map, 1949.

Simultaneous coccidioidin and histoplasmin (*Coccidioides immitis* and *Histoplasma capsulatum* antigens) skin tests were performed on normal military personnel and others undergoing coccidioidal infections. Of 3,376 healthy persons negative or equivocal to coccidioidin, 864 (25·6 per cent.) reacted dominantly to histoplasmin. In 31 persons negative to both antigens subsequent coccidioidal infections evoked sensitivity and concomitantly positive histoplasmin as well as coccidioidin reactions. Simultaneous blastomycin, histoplasmin, and coccidioidin tests on patients undergoing coccidioidal infections showed non-specific cross-reactions of the blastomycin and histoplasmin of approximately the same order.

The presence of histoplasmin sensitivity in six persons who had been outside the area of dominant histoplasmin sensitivity for periods of 10 to over 20 years bespoke its persistence. Positive reactions to histoplasmin were given by four-fifths of the persons tested from Missouri, three-fourths from Tennessee and Kentucky, with concentric diminutions until the New England, Rocky Mountain, and Pacific Coast States appeared virtually devoid of reactors. These results were in close agreement with those of other studies and denoted extensive unapparent infection, probably by *H. capsulatum*, with or without one or more additional fungi with which histoplasmin cross-reacts freely.

The utility of histoplasmin seems to be limited by its cross-reacting tendency, but at appropriate relative concentrations both this antigen and coccidioidin are valuable in the diagnosis and epidemiological investigation of pulmonary lesions.

1416. Furcolow (M. L.). **Development of calcification in pulmonary lesions associated with sensitivity to histoplasmin.**—*Publ. Hlth Rep., Wash.*, 64, 44, pp. 1363–1393, 56 figs., 1949.

Most of the several hundred children who reacted positively to histoplasmin [*Histoplasma capsulatum* antigen] and negatively to tuberculin in a Kansas City survey covering varying periods up to four years [No. 945] gradually developed calcification in pulmonary lesions, and 17 of these cases were selected for presentation in this paper. Two films are reproduced from the series for each child, the earlier one showing the lesion and the later calcification. Brief case summaries of the pertinent data are given with each series.

1417. Zahn (D. W.). **Pulmonary infiltration associated with sensitivity to histoplasmin. Report of a case.**—*Amer. Rev. Tuberc.*, 59, 6, pp. 636–642, 2 figs., 1949. [Spanish summary.]

A case of pulmonary infiltration with tuberculin allergy and histoplasmin (*Histoplasma capsulatum* antigen) sensitivity in a 26-year-old male patient is reported from the Veterans' Administration Hospital, Fort Logan, Colorado. The possibility of such a case representing an instance of 'benign histoplasmosis' is discussed. The danger of confusion between such cases and tuberculosis is emphasized and the broad aspects of their management reviewed.

1418. Absher (W. K.) & Cline (F.). **A correlated study of tuberculin, histoplasmin and coccidioidin sensitivities with pulmonary calcifications in the Rocky Mountain area.**—*Amer. Rev. Tuberc.*, 59, 6, pp. 643–649, 2 figs., 1949. [Spanish summary.]

A roentgenographic and skin-testing survey of 1,000 veterans and Veterans' Administration personnel in relation to the problem of multiple pulmonary calcifications is reported from the Veterans' Administration Hospital, Fort Logan, Colorado. Of the cases tested 404 (40·4 per cent.) reacted to tuberculin alone, and of these 14 showed multiple pulmonary calcifications; of the 73 reacting to histoplasmin (*Histoplasma capsulatum* antigen) alone, eight showed multiple pulmonary calcifications; and of the 110 (11 per cent.) reacting to both antigens, 16 showed such calcifications. These observations confirm the finding of the United States Public Health Service investigators to the effect that the Rocky Mountain area is not endemic for the so-called 'benign histoplasmosis'. In this series no diagnostic pattern or distribution of pulmonary calcifications was noted in either tuberculin- or histoplasmin-positive individuals. It was further observed that the 'halo' type of pulmonary calcifications are not restricted to histoplasmin-sensitive subjects.

1419. Ross (B. D.). **Chronic histoplasmosis ; a common cause of pulmonary calcification : report of a case with superimposed acute pneumonitis.**—*Sth. med. J.*, 42, 9, pp. 738–741, 3 figs., 1949.

A case is reported from Miami, Florida, in a 12-year-old boy of chronic, benign, subclinical histoplasmosis (*Histoplasma capsulatum*) with superimposed acute pneumonitis. The former disease is believed to have been contracted before the patient left Indiana at the age of seven. The importance of routine consideration of histoplasmosis in the differential diagnosis of pulmonary calcification is discussed.

1420. Goddard (Jennie C.), Edwards (Lydia B.), & Palmer (C. E.). **Studies of pulmonary findings and antigen sensitivity among student nurses. IV. Relationship of pulmonary calcification with sensitivity to tuberculin and to histoplasmin.**—*Publ. Hlth Rep., Wash.*, 64, 26, pp. 820–846, 6 graphs, 1949.

The frequency of reactors to histoplasmin (*Histoplasma capsulatum* antigen) among 16,320 student nurses in 10 metropolitan areas of the United States varied from over 60 per cent. in Kansas City, Missouri, and Columbus, Ohio, to under 10 per cent. in San Francisco, Denver, and Minneapolis. Tuberculin reactors varied from 23 per cent. in Philadelphia to 8 per cent. in Minneapolis, while the rates for pulmonary calcification were found to be above 20 per cent. in Kansas City and 5 per cent. or less in San Francisco, Los Angeles, and Minneapolis. About one-third of the nurses reacting to histoplasmin, or to both histoplasmin and tuberculin, showed pulmonary calcification, as compared with one-tenth of those reacting only to tuberculin and 0·7 per cent. not responding to either antigen. The extreme rarity of the condition among non-reactors is regarded as strong presumptive evidence that tuberculosis, with the addition of whatever agency induces sensitivity to histoplasmin, accounts for nearly all the roentgenologically detectable pulmonary calcification among the persons examined.

1421. Pates (Anne L.). **Precipitin reactions in experimental histoplasmosis and blastomycosis.**—*Science*, 108, 2806, pp. 383–385, 1948.

This is a preliminary report of the demonstration of precipitins in the sera of rabbits inoculated intravenously with the yeast-like phases of *Histoplasma capsulatum* and *Blastomyces dermatitidis*, indicating that precipitin tests may be of value as an aid in the diagnosis of histoplasmosis and blastomycosis.

1422. Allen (R.). **Experimental histoplasmosis : portal of entry of the fungus.**—*Amer. J. trop. Med.*, 28, 6, pp. 857–861, 1948.

In an attempt to determine the portal of entry of *Histoplasma capsulatum*, 30 mice and 12 guinea-pigs were inoculated orally with the yeast-like phase of the fungus, which was recovered in culture from 21 of the former and nine of the latter animals. It was further recovered from nine out of 12 guinea-pigs inoculated intranasally.

1423. Salvin (S. B.). **Cysteine and related compounds in the growth of the yeast-like phase of Histoplasma capsulatum.**—*J. infect. Dis.*, 84, 3, pp. 275–283, 2 figs., 1 graph, 1949.

No single amino acid proved to be necessary for the growth of the mycelial and yeast-like phases of *Histoplasma capsulatum* [No. 937], while the former also developed with ammonium as the sole source of nitrogen. However, a sulphide or sulphydryl group in a small organic molecule, preferably an amino acid, was indispensable for the growth of the yeast-like phase. The yeast-like cells required biotin for their development, but only one of the eight strains responded to the growth factor by increased mycelial production. The mycelial phase was transformed into the yeast-like, and vice versa, by varying the composition of the medium.

1424. Norden (A.). **Agglutination of sheep's erythrocytes sensitized with histoplasmin.**—*Proc. Soc. exp. Biol. Med.*, 70, 2, pp. 218–220, 1949.

A haemagglutination test is reported from the Duke University School of Medicine, Durham, North Carolina, using sheep's erythrocytes sensitized with histoplasmin and sera from two rabbits immunized with *Histoplasma capsulatum*. The optimal dilution of histoplasmin was found to be 1:2. The rabbit sera gave titres of 1:1,280 and 1:320, respectively. Sera from six normal rabbits, from two infected with *Sporotrichum schencki*, and from one immunized with *Candida albicans* yielded no positive reactions, but these sera were shown by standard agglutination tests to contain antibodies against their homologous organisms. Serum from one human case of histoplasmosis contained no antibodies.

1425. Emmons (C. W.). **Histoplasmosis in animals.**—*Trans. N.Y. Acad. Sci.*, Ser. II, 11, 7, pp. 248–254, 1949.

This is a summary and discussion of the available information on histoplasmosis (*Histoplasma capsulatum*) in animals in the light of 31 contributions to the relevant literature.

1426. Furcolow (M. L.) & Ruhe (J. S.). **Histoplasmin sensitivity among Cattle.**—*Amer. J. publ. Hlth*, 39, 6, pp. 719–721, 1 graph, 1 map, 1949.

Histoplasmin (*Histoplasma capsulatum* antigen) reactors have been found to occur among cattle in Kansas, where their geographical distribution corresponds with that of human reactors. The age-specific rates for cattle were also found to be the same as those determined for human beings in Shawnee County. Hence it is deduced that both cattle and man probably acquire infection from an identical external source, and that the former do not constitute an important animal reservoir in the spread of histoplasmosis to human beings.

1427. Emmons (C. W.), Morlan (H. B.), & Hill (E. L.). **Histoplasmosis in Rats and Skunks in Georgia.**—*Publ. Hlth Rep., Wash.*, 64, 44, pp. 1423–1430, 4 figs., 1949.

Histoplasma capsulatum was isolated from seven brown rats (*Rattus norvegicus*), four roof rats (*R. rattus*) [Nos. 1194, 1195], and five spotted skunks (*Spilogale putorius*) in south-western Georgia. These 16 strains are similar to one another but differ from most of the human, canine, and rodent isolates in the paucity of macro- and profusion of microconidia. They are pathogenic to mice, and all have been reisolated from experimentally infected mice on blood agar in the typical yeast-like growth form.

1428. Emmons (C. W.). **Isolation of Histoplasma capsulatum from soil.**—*Publ. Hlth Rep., Wash.*, 64, 28, pp. 892–896, 12 figs., 1949.

Histoplasma capsulatum was isolated from two out of 387 soil samples collected at the entrance to rat burrows on a farm in Virginia where seven out of 43 rats trapped had proved to be suffering from histoplasmosis [No. 950]. The strains from this source are characteristic of those isolated from the human, canine, and murine forms of the disease. Macroconidia typical of those developing in cultures of the fungus were found by direct microscopic examination of saline suspensions of the two samples.

1429. Hausman (R.). **Over Mycetoma pedis (Madura-voet).** [A case of Madura foot.]—*Med. Maandbl.* (*Batavia*), 2, 1, pp. 5–8, 1 pl., 1949. [*T.D.B.*, 46, 494.]

A description is given of a case of mycetoma pedis in Lombok Island (Indonesia).

1430. Luteraan (P. J.) & Langeron (M.). **L'immersion des champignons levuriformes dans les milieux de culture solides.** [The immersion of yeast-like fungi in solid culture media.]—*C.R. Acad. Sci., Paris*, 228, 14, pp. 1247–1249, 1949.

Some yeasts, seeded on the surface of a nutrient agar slope, tend to sink into the medium after a variable period and to produce a considerable number of hyphae or pseudohyphae under immersion. This character is a morphological criterion, being pronounced in *Pichia* spp., *Candida* (*albicans* and *krusei* groups), *C. tropicalis*, and *C. lipolytica*, and absent in *Debaryomyces*, *Hansenula*, *Torulopsis*, *Mycoderma*, and (generally) in *Saccharomyces*, on media balanced in nitrogen and glycides. The phenomenon is discussed under various aspects.

1431. Colonnello (F.). **Il significato biologico e patologico di alcuni miceti lieviti-formi nell'ambiente intestinale dell' Uomo.** [The biological and pathological significance of some yeast-like fungi in the human intestinal tract.]—*Riv. Clin. pediatr.*, 41, pp. 472–488, 1943.

This is a summary of the literature on the occurrence of yeast-like fungi in the human intestinal tract and a discussion of their significance in the light of the author's experience at Milan, where he examined the faeces of 18 infants up to one year old suffering from acute dyspepsia, entero-colitis, etc., and of ten adults returned from the African front with amoebic dysentery, besides those of three infants and seven adults in perfect health. The specimens taken from the sick infants and adults yielded *Candida tropicalis*, *C. chalmersi*, *C. pseudotropicalis*, and *C. albicans*, with the addition in the latter group of *C. krusei*. Two healthy infants and one adult harboured *C. albicans*, one of each group *C. triadis*, and one adult *C. guilliermondi*. The available evidence is not considered to point to the implication of these fungi in the etiology of the diseases under observation.

1432. Cazzola (D.) & Mosconi (G.). **Gli ifomiceti ed i saccaromiceti nella vagina della neonata e della donna impubere.** [The Hyphomycetes and Saccharomycetes in the vagina of the newly born female and the female under the age of puberty.]—*Arch. Ostet. Ginec.*, 52, 2, pp. 65–80, 1 graph, 1947. [Received June, 1949].

Soon after the birth of the female child Saccharomycetes are present in the vagina; they become progressively more numerous, and after the second year their numbers remain constant up to puberty. Hyphomycetes are not present in the vagina of the newly born female child, but appear towards the end of the first six months; after the second year of the child's life, their number remains more or less constant. After the beginning of the second year vaginas differ in the numbers of these organisms present.

1433. Lederer (H.) & Todd (R. McL.). **Thrush in infancy.**—*Arch. Dis. Childh.*, 24, 119, pp. 200–207, 6 figs., 1949.

In a series of 204 necropsies, reported from the Child Health Department, University of Liverpool, on infants under one year old, 26 cases were encountered in which infection by *Monilia* [*Candida*] *albicans* was directly or indirectly responsible for death. The complications resulting from the extension of infection from the pharynx into the oesophagus are described. Diagnostic difficulties in the living and at necropsy may be responsible for a significant number of fatal cases of thrush which remain undetected and unrecorded.

1434. Spicer (C.), Hiatt (W. O.), & Kessel (J. F.). **Candida albicans and Cryptococcus neoformans occurring as infective agents in an eight-year-old Boy.**—*J. Pediat.*, 33, 6, pp. 761–769, 8 figs., 1948.

A case is reported of an initial chronic infection by *Candida albicans*, causing generalized cutaneous mycosis, in an eight-year-old boy at the Los Angeles

Children's Hospital, California, the onset of the disease having occurred four years previously. The fungus was identified by clinical manifestations, cultural morphology, growth on differential carbohydrate media, and rabbit inoculation. Two days before death cultures of the spinal fluid and urine also yielded *Cryptococcus neoformans*, which was identified by the same criteria. This case is regarded as unique, not only because of its occurrence in the first decade of life, but also on account of the overwhelming terminal invasion by *C. neoformans*, superimposed on a long-standing moniliasis.

1435. Engelhard (C. F.). **Candida albicans infection in a child.**—*J. Pediat.*, 32, 4, pp. 404–409, 2 figs., 1948.

Full clinical details are given of a case of generalized infection by *Candida albicans* in a seven-month-old female infant in Rotterdam, Holland. The condition showed localized infection of the left ureter, the bladder, the urethra, and the vulva. Infection of the lower bowel was also present, with symptoms resembling intussusception. The lungs were abnormal, possibly owing to an allergic reaction. Further evidence for this allergic state was found in a skin rash, recognized as moniliid, and in the results of skin reactions to antigen. Animal inoculations showed the fungus to be pathogenic. Recovery appeared to be spontaneous.

1436. Thjötta (T.) & Amlie (R.). **Three cases of infection with Monilia (Castellania) tropicalis Castellani.**—*Acta path. microbiol. scand.*, 24, pp. 161–168, 6 figs., 1947.

Three cases of infection by *Monilia* (*Castellania*) [*Candida*] *tropicalis* are described from the Wilhelmsen Bacteriological Institute, Oslo, Norway, together with the morphological, biochemical, and pathogenic features of the several strains. The patients were a five-year-old boy with a disease of the mucous membranes of the mouth and tongue, spreading to the nails and the skin of the body; a young man whose condition simulated tuberculosis; and a 60-year-old male suffering from bronchitis. In the first case there was no doubt as to the etiological implication of the fungus, since antibodies were found in the patient's blood. The other two yielded no conclusive proof of fungus involvement, but circumstantial evidence pointed to a weak pathogenicity in the second case, without production of antibodies, while a somewhat problematical agglutination reaction was manifested in the third.

1437. Ephraim (H.). **Chronic deep Monilia albicans infection of the mucous membrane of the mouth.**—*Harefuah*, 36, 11, pp. 128–129, 1949. [Hebrew, with English summary.]

Monilia [*Candida*] *albicans* infections of the oral cavity are rare in adults in Israel. In the case here reported from Haifa the patient suffered from a deep chronic form of the disease with leucoplakia-like lesions and ulcerations. A combination of local therapy with vitamin A medication resulted in an improvement, which was not maintained, however, when the treatments were discontinued.

1438. Kressmann-Debus (E.). **Blastomykose des Ohres.** [Blastomycosis of the ear.]—*Z. Laryngol., etc.* [now *Hals- Nasen- u. Ohrenarzt*], 28, 7, pp. 338–341, 1949. [Abs. in *Dermatol. & Venereol.* (*Excerp. med.*, Sect. XIII), 3, 12, p. 607, 1949.]

A case of blastomycosis in a 26-year-old female is reported from Erlangen, Germany. Following an operation for acute otitis media the operation scar broke down and formed a chronic ulcer. About a year later similar ulcers developed on the right breast and leg. Changes on the finger nails had long

been present. Histological and cultural examinations of all the lesions yielded fungi of the *Candida* type. Infection is believed to have arisen in the nails and spread to the ear, promoted by the patient's poor general condition.

1439. Robertson (R. F.). **Pulmonary moniliasis.**—*Edinb. med. J.*, 55, 5, pp. 274–281, 1948.

In connexion with a fatal case of pulmonary moniliasis (*Monilia* [*Candida*] *albicans*) in a 42-year-old female patient at the Royal Infirmary, Edinburgh, the writer reviews the relevant literature and discusses the formidable difficulties arising in the diagnosis of the disease.

1440. Riley (Kathleen A.). **Monilial infection of the thumb nail : report of a case.**—*Arch. Derm. Syph., Chicago*, 59, 5, pp. 589–590, 1 fig., 1949.

The case of a four-year-old boy with onychomycosis of the left thumb nail due to *Candida albicans* is reported from Charleston, South Carolina. The infection had been acquired through sucking the thumb during an attack of thrush. A cure was effected by two daily half-hour treatments with 1 in 4,000 potassium permanganate, followed by an application of (1) 1 per cent. methylrosaniline chloride in a 10 per cent. solution of alcohol and (2) sodium propionate ointment.

1441. Reiss (F.). **Steroid hormones : their fungistatic and genestatic effect on pathogenic fungi.**—*Arch. Derm. Syph., Chicago*, 59, 4, pp. 405–413, 1949.

The fungistatic and genestatic (sporulation-inhibiting) effects of 12 hormones on 14 pathogenic fungi were studied. Oestrogenic hormones exerted a more appreciable genestatic action than androgenic. The most effective fungistatic compound was diethylstilbestrol, the other steroid hormones investigated showing a variable fungistatic effect, most probably depending on their molecular structure. *Monilia* [*Candida*] *albicans* and *Torula histolytica* [*Cryptococcus neoformans*] showed enhanced growth in steroid hormone-containing media.

1442. Kocková-Kratochvílová (A.). **Vliv kyseliny borité na druhy rodu Candida.** [Influence of boric acid on strains of the genus *Candida*.]—*Československ. Gynaekol.*, 14, 2, pp. 97–100, 1949. [Abs. in *Dermatol. & Venereol.* (*Excerp. med.*, Sect. XIII), 3, 12, pp. 607–608, 1949.]

Candida robusta proved to be the least resistant to boric acid of all the strains tested, its growth being retarded at a concentration of 4.10^{-3} gm. per ml. With the exception of *C. tropicalis*, all were stimulated by low concentrations (4.10^{-6} to 4.10^{-11} gm. per ml.).

1443. Foley (G. E.) & Winter (W. D.). **Increased mortality following penicillin therapy of Chick embryos infected with Candida albicans var. stellatoidea.**—*J. infect. Dis.*, 85, 3, pp. 268–274, 1 graph, 1949.

The administration of a single dose of 500 Oxford units of crystalline penicillin G on the chorioallantoic membrane of 10-day chick embryos increased the mortality resulting from infection by *Candida albicans* or its var. *stellatoidea*. A comparable effect was observed in rabbits infected with the latter organism and given a daily intramuscular dose of 150,000 Oxford units of the same drug. Preliminary observations further suggest that penicillin exerts a stimulatory action on cultures of *C. albicans* var. *stellatoidea*.

1444. Sartory (A.) & Potier (E.). **Étude d'une levure nouvelle Saccharomyces laryngitidis n.sp.** [Study of a new yeast *Saccharomyces laryngitidis* n.sp.]—*C.R. Acad. Sci., Paris*, 228, 25, pp. 1969–1970, 1949.

Saccharomyces laryngitidis n.sp. [without a Latin diagnosis], isolated from one case of laryngitis, three cases of angina, and seven of bronchitis complicated

by congestion of the lungs, produces an abundant white growth on all the usual solid and liquid media. The optimum temperature for its development lies between 30° and 35° C., with a maximum above 41°. The ascospores (four in each ascus) measure 3 by 2·5 μ. Saccharose and maltose are decomposed but not lactose, galactose, or laevulose. The yeast is highly pathogenic to the guinea-pig and rabbit.

1445. Vanbreuseghem (R.). **Sur une levure, Candida truncata, n.sp., isolée d'une dermatose présentée par le Dr. Eyckmans.** [On a yeast, *Candida truncata* n.sp., isolated from a dermatosis presented by Dr. Eyckmans.]—*Arch. belg. Derm. Syph.*, 4, 4, pp. 1–7, 2 figs., 1948.

From dry lesions on the trunk and limbs of three European children recently returned from the Belgian Congo a yeast was isolated belonging to the group *Candida albicans* but differing from that species in its failure to utilize maltose and urea. The name proposed for the fungus is *C. truncata* n.sp. Whether this organism was the cause of the ailment was not established.

1446. Negroni (P.) & Daglio (C. A. N.). **Sobre el género Nectaromyces.** [On the genus *Nectaromyces*.]—*An. Soc. cient. argent.*, 144, 4, pp. 484–491, 2 figs., 1948.

A description is given of the cultural, morphological, and physiological characters of *Nectaromyces rattus* n.sp., isolated from the spleen of a rat affected by splenomegaly at the Malbran Bacteriological Institute, Buenos Aires. The colonies on solid media are white, damp, and glistening. The globose blastospores measure 2·3 to 8·2 μ in diameter and the pseudoconidia 8 to 18 by 2·5 μ. The optimum temperature for growth is 33° C. Glucose, galactose, saccharose, maltose, and raffinose are utilized as sources of carbon. Nitrogen is obtained exclusively from peptone. Milk is coagulated and acidified.

1447. Massoud (G. El D.). **The radiological picture of mycetoma. (Report of a case verified by biopsy).**—*J. roy. Egypt. med. Ass.*, 32, 1, pp. 64–68, 1949. [*T.D.B.*, 46, 778.]

A clinical and radiological account is given of a case of mycetoma of the foot, diagnosis being confirmed by biopsy. Some degree of new bone formation was present.

1448. Stigter (W.). **Voorkomen en behandeling van onychomycosis.** [Occurrence and treatment of onychomycosis.]—*Nederl. Tijdschr. Geneesk.*, 92, 4, pp. 4027–4031, 1948.

This is a review of some contributions to the literature on onychomycosis and its treatment, with special reference to the forms induced by *Trichophyton mentagrophytes*, *T. rubrum*, and *Candida albicans*.

1449. Alkiewicz (J.). **Transverse net in the diagnosis of onychomycosis.**—*Arch. Derm. Syph., Chicago*, 58, 4, pp. 385–389, 2 diags., 1948.

A pathognomonic symptom of onychomycosis, the transverse white net, is described from the University of Posen, Poland. The phenomenon is stated to be discernible in the majority of cases of fungal infection of the nail, but only with magnification and through an oil drop. The white lines correspond to air-filled tunnels in the nail plate. Besides these visible transverse spaces there are deeper-laid invisible shafts, extending proximally in the nail ridges. Photomicrographs of a case of onychomycosis due to *Trichophyton asteroides* [*T. mentagrophytes*] are presented as illustrative of the transverse net.

1450. Götz (H.). **Ein Beitrag zur Pilzflora klinisch gesunder Haut.** [A contribution to the mycoflora of clinically healthy skin.]—*Derm. Wschr.*, 119, 11, pp. 659–664, 1949.

Epidermophyton Kaufmann-Wolf [*Trichophyton interdigitale*] was isolated in 120 cultures from the clinically healthy skin of the feet of 60 patients in the Municipal Hospital, Essen. Yeasts were present in 61 per cent. of the cultures, 5·61 per cent. of which were outgrown by moulds and 56 per cent. by bacteria.

1451. Giardini (A.) & Serri (F.). **Potere patogeno dei Dermatomiceti sull'occhio.** [Pathogenicity of Dermatomycetes to the eye.]—*Mycopathologia*, 4, 2, pp. 172–186, 1948. [English summary.]

Studies on the reaction of the conjunctiva, cornea, anterior chamber, and vitreous humour of the eyes of rabbits inoculated with suspensions of *Trichophyton gypseum asteroides* [*T. mentagrophytes*] and *Microsporum lanosum* [*M. canis*] failed to show true pathogenicity on the part of these fungi to the conjunctiva and other parts of the eye (excluding the crystalline). As similar results were obtained with rabbits which had developed sensitivity to these organisms, the authors attribute the conjunctivitis sometimes appearing during deep dermatophytosis to the reaction of tissues in an allergic condition induced by the presence of Hyphomycetes or their toxins, carried through the blood or externally. Ophthalmic reaction in both rabbit and man was constantly observed when trichophytin was introduced through the subconjunctival route.

1452. Nikolowski (W.) & Walther (H.). **Pilzerkrankungen des behaarten Kopfes.** [Fungal diseases of the scalp.]—*Ärztl. Forsch.*, 3, 10, pp. 254–260, 1949. [Abs. in *Dermatol. & Venereol.* (*Excerp. med.*, Sect. XIII), 3, 12, p. 606, 1949.]

Seven cases of trichophytosis are reported from Bad Worishofen, six with a concurrent hunger oedema and the seventh in a 68-year-old male. Cultures yielded *Trichophyton acuminatum* [*T. sabouraudi*] and *T. gypseum* [*T. mentagrophytes*].

1453. Vanbreuseghem (R.) & Moriame (G.). **À propos d'un cas de teigne mixte par Sabouraudites (Microsporon) felineum et Trichophyton crateriforme.** [On a case of combined ringworm caused by *Sabouraudites* (*Microsporon*) *felineum* and *Trichophyton crateriforme*].—*Arch. belg. Derm. Syph.*, 4, 4, pp. 1–11, 2 figs., 1948.

A case is described in which an eight-year-old girl from an orphanage in Belgium showed infection in 1947 by *Microsporum felineum* [*M. canis*] and later also by *Trichophyton crateriforme* [*T. tonsurans*], the former fungus being isolated from the occipital region and the latter from the forehead. Cultured together *in vitro*, the two organisms showed no particular antagonism.

1454. Moriame (G.) & Vanbreuseghem (R.). **Epidémie familiale d'une mycose cutanée due à Cténomyces granulosus.** [Family epidemic of a cutaneous mycosis due to *Ctenomyces granulosus*.]—Reprinted from *Arch. belg. Derm. Syph.*, 5, 1, 8 pp., 3 figs., 1949.

Four members of a Belgian family (both parents, daughter aged 10 years, son aged three) developed a skin condition (attributed by the parents to infection from a cat which had lost its hair). Hairs from affected and healthy parts showed no spores and no mycelium present and the root was normal, though squamae showed the presence of a thick mycelium. The organism was identified as Sabouraud's *Trichophyton granulosum* or, according to Langeron's nomenclature, *Ctenomyces granulosus*. The case is regarded as exceptional in that the fungus was present in the squamae and not in the hair and the lesions were not of the very inflammatory type. Marked improvement followed applications three times daily of tyrothricin solution (30 per cent.) [cf. No. 1135].

1455. Härö (S.). **On the asymptomatic occurrence of ringworm of the feet in Finland.**—*Ann. Med. exp. Biol. Fenn.*, 27, 2, pp. 73–77, 1949.

Of 543 patients of the Municipal Home and 70 of the Kumpula Hospital, Helsinki, without symptoms of infection by dermatophytes, 31 were shown by the culture of epidermal scrapings on 2 per cent. maltose agar to harbour *Trichophyton interdigitale* and one *Microsporum gypseum* (believed to be the first record for a northern country) [see next entry], giving a percentage of 5·9; *Monilia* [*Candida*] was present in 12 (2·2 per cent.), *Mucor racemosus* in the same number, *Alternaria* in 19 (3·5), *Penicillium*, *Aspergillus*, etc., in 130 (23·7), and 338 (62·5 per cent.) yielded no growth. The maximum incidence of fungal infection (9·5 per cent.) occurred in the 80- to 90-year group, followed by 8·5 per cent. at 40 to 50.

1456. Härö (S.). **Un cas de Sabouraudites gypseum en Finlande.**—*Ann. Med. exp. Biol. Fenn.*, 27, 2, pp. 134–136, 1949.

A description is given of *Microsporum gypseum*, isolated from the little toe of a 48-year-old seamstress in the course of a study on asymptomatic ringworm of the feet in Finland [see preceding entry].

1457. Cawley (E. P.) & Grekin (R. H.). **Parafavus restricted to the scrotum : report of a case.**—*Arch. Derm. Syph., Chicago*, 60, 3, pp. 435–436, 1 fig., 1949.

Microsporum gypseum was the agent of a cutaneous eruption of the scrotum in a 24-year-old patient at the University of Michigan Medical School who came into daily contact with milk cattle. A cure was effected by a fortnight's topical therapy with undecylenic acid.

1458. Memmesheimer (A. M.). **Zur Histologie der Epidermophytie.** [On the histology of epidermophytosis.]—*Arch. Derm. Syph., Berl.*, 187, 2–3, pp. 134–141, 6 figs., 1948.

The author cites 16 cases of epidermophytosis treated at the Municipal Hospital, Essen, to illustrate the frequency with which *Epidermophyton* spores and mycelia are found in the intra-epidermal vesicles. They may also be discerned within the cutaneous infiltrate or lying in lymph spaces without producing a cellular reaction. The fungal elements are, however, very scarce, sometimes necessitating the preparation of numerous sections for their detection. They are inaccessible to the usual methods of therapy with ointment or X-rays and are probably a frequent cause of recurrence of the trouble.

1459. Čajkovac (Š.). **Prilog patogenosti Trichofiton rubruma.** [On the pathogenicity of *Trichophyton rubrum*.]—*Acta med. iugosl.*, 2, 2–3, pp. 176–198, 2 figs., 1948. [English summary.]

In connexion with a case of widely diffused dermatomycosis caused by *Trichophyton rubrum* in a 32-year-old woman at Zagreb, Yugoslavia, the author presents a synopsis, based on personal observations and a survey of the relevant literature, of the clinical pictures associated with the condition, especially in Europe. In the present instance the illness persisted for two years and closely resembled serpiginous pemphigus.

Microscopic examination of the hairs of a guinea-pig inoculated with a culture of *T. rubrum* revealed the endotrichal position of the sporulated hyphae. The factors governing the clinical aspect of dermatomycosis are discussed. *T. rubrum* possesses very weak antigenic properties, so that a sufficiently high 'immuno-biological titre' develops rather late. Hence the foci of the disease caused by this species are more extensive than those of the more aggressive dermatophytes. A list is given of 50 original or combined names for *T. rubrum*. The bibliography comprises 151 titles.

1460. Marples (M. J.) & Di Menna (M. E.). **A survey of the incidence of interdigital fungus infection in a group of students from the University of Otago.**—*Med. J. Aust.*, 36 (ii), 5, pp. 156–161, 1949.

Of 568 students of the University of Otago, Dunedin, New Zealand, examined for interdigital fungous infection, 78 were shown to be harbouring a dermatophyte. Attempts were made to obtain cultures from every subject tested, and 60 (10·6 per cent.) gave rise to a pathogenic fungus, *Trichophyton mentagrophytes* predominating (49), while the other species represented were *T. rubrum* (2), *T. violaceum* (1), and *Epidermophyton floccosum* (8). Only 10 of the 187 female students (5·9 per cent.) gave culturally positive results. Other factors analysed in relation to the incidence of infection are those of age, military service, and living conditions, and the results are further discussed under the headings of problems of diagnosis and problems arising out of the study of environmental conditions.

1461. Cawley (E. P.) & Horne (S. F.). **Concurrent fungous infection of the skin.**—*Arch. Derm. Syph., Chicago*, 59, 6, pp. 667–668, 1 fig., 1949.

A case of concurrent fungal infection of the skin of the forehead (*Trichophyton gypseum* [*T. mentagrophytes*]) and of the nails (*T. violaceum*) in a 55-year-old woman is reported from the University Hospital, Ann Arbor, Michigan. In this connexion a brief review is given of previous contributions to the literature on multiple fungous infections of the skin.

1462. Baker (C. G.). **Superficial mycoses.**—*Kentucky med. J.*, 47, 1, pp. 15–21, 1949.

Descriptions are given of a number of superficial mycoses, most of which fall into the two main groups of tinea and moniliasis, while the rest include pityriasis versicolor [*Malassezia furfur*], erythrasma [*Nocardia minutissima*], otomycosis, lepothrix [*N. tenuis*], and chromoblastomycosis. Therapeutic measures appropriate to the various conditions are indicated.

1463. Adamson (H. G.). **Pityriasis versicolor with subsequent leucodermic patches.**—*Brit. J. Derm. Syph.*, 61, 10, pp. 322–323, 1949.

Pityriasis versicolor, caused by *Malassezia furfur*, is not very uncommon in Great Britain, where it has been calculated to account for 1 to 1·5 per cent. of all dermatological complaints. It has, however, been accorded little attention in the literature, and a case is recorded, and its implications briefly discussed, in which a large group of white patches, presenting the aspect of leucodermia, developed on one side of the body of a young man recently returned from India with deeply bronzed skin.

1464. Bumgarner (F. E.) & Burke (Ruth C.). **Pityriasis versicolor: atypical clinical and mycologic variations.**—*Arch. Derm. Syph., Chicago*, 59, 2, pp. 192–195, 1949.

Uncommon clinical manifestations of pityriasis (tinea) versicolor (*Malassezia furfur*) are reported among ex-military personnel recently under treatment by the authors at Los Angeles, California. The presence of undiagnosed and untreated lesions of the neck and scalp may serve as a focus of persistent and recurrent outbreaks of the malady. Although branching mycelium was observed in all the 47 cases studied, it was composed of only a few short cells, seldom having more than one or two short branches, and bore no blastospores other than young cells, presumed to represent new hyphal elements. In some of the patients responding to treatment with an ointment containing salicylic acid, sulphur, and petrolatum the fungus appeared abnormal, no pseudomycelium being detected and the few organisms present being two or three times their normal size without budding.

1465. Burke (R[uth] C.) & Bumgarner (F. E.). **Superficial mycoses of veterans. I. Survey of one thousand veterans with a service diagnosis of dermatomycosis.**—*Arch. Derm. Syph., Chicago*, 60, 5, pp. 742–749, 1949.

No new strains or species of parasitic fungi were observed in a survey at Los Angeles, California, of 1,000 ex-servicemen with a service diagnosis of dermatomycosis. Of the 466 patients for whom laboratory findings were positive, dermatophytosis was recorded for 416 (87·1 per cent.), moniliasis for 13 (3), tinea versicolor (*Malassezia furfur*) for 40 (8·4), otomycosis for 5 (1·1), and erythrasma [*Nocardia minutissima*] and black tongue for 1 each (0·2). Cultures yielded dermatophytes in 214 (47·5 per cent.) of the cases in which slides were positive, namely, *Trichophyton gypseum* [*T. mentagrophytes*] in 127 (59·3), *T. rubrum* in 70 (32·7), *Epidermophyton floccosum* in 4 (1·9), and *Candida albicans* in 13 (6·1). The 40 cases of tinea versicolor, together with a further seven, have been presented in an earlier paper [see preceding entry]. In one case of erythrasma there was concurrent infection by *M. furfur*. *Aspergillus niger* was isolated from three of the five cases of otomycosis (all from the United States) and *A. glaucus* and *A. versicolor* from the two others (South Pacific and Brazil, respectively).

1466. Gilbert (R. O.). **Report of an outbreak of ringworm of the scalp due to M. audouini.**—*Calif. Med.*, 70, 3, pp. 194–197, 1949.

Wood's lamp was found to be an indispensable appliance in the diagnosis of tinea capitis due to *M[icrosporum] audouini* in a recent outbreak among schoolchildren in Los Angeles County, California. Culturing on Sabouraud's dextrose agar is also essential. Most surveys reveal an infection ratio of six or seven boys to one girl. X-ray epilation offers the best prospect of cure in the shortest time, while the most effective topical application is an ointment containing 5 per cent. salicylanilide in carbowax 1500. Barbers' instruments can be satisfactorily sterilized in petroleum oil at 100° C. During the autumn of 1947, out of 2,829 scalps examined under Wood's light, 97 (3·4 per cent.) fluoresced. Uncontaminated cultures were obtained in 87 of these cases, of which 84 (96 per cent.) were *M. audouini* and three (4 per cent.) *M. lanosum* [*M. canis*]. Early in January, 1948, 18 had been returned to school as cured.

1467. Montgomery (R. M.), Heinlein (J. A.), & Karpluk (Frances E.). **Ringworm of the scalp in New York.**—*N.Y. St. J. Med.*, 48, 6, pp. 629–630, 1948.

From 1940 to 1947, inclusive, 2,857 cases of tinea capitis were studied at the New York Skin and Cancer Unit. Of these 2,379 (83·3 per cent.) were caused by *Microsporum audouini*. Since 1943 there has been a sharp rise in the incidence of ringworm of the scalp, and a substantial relative increase in the prevalence of *M. audouini*, which was the causal organism in 85·5 per cent. of the 587 cases treated in 1946, and in 82·6 per cent. of the 528 in 1947. Three cases of scalp infection by *Trichophyton crateriforme* [*T. tonsurans*] and four by *T. sulphureum* are reported, together with four of involvement of the eyelashes by *M. audouini*. Fuseaux-like bodies were detected on direct examination of the hairs in one case of tinea capitis due to *M. audouini*.

1468. Loewenthal (K.). **Tinea capitis due to combined infection with Microsporum audouini and Microsporum lanosum.**—*Arch. Derm. Syph., N.Y.*, 58, 1, pp. 27–33, 3 diags., 1948.

A case of tinea capitis due to combined infection with *Microsporum audouini* and *M. lanosum* [*M. canis*] in an 11-year-old negro girl is reported from the Long Island College Hospital, New York. The clinical aspect was at all times and in all sites identical with that commonly observed in the anthropophilic form of the disease. There was no response to the therapeutic agents tested.

1469. Price (H.) & Fainer (E. M.). **Ringworm of the scalp. Report of an epidemic in Los Angeles.**—*Ann. west. Med. Surg.*, 2, 6, pp. 266–270, 1 map, 1948.

Up to 1st June, 1948, a total of 462 cases of 'human-type' tinea capitis (*Microsporum audouini*) had been diagnosed in the city and County Territory of Los Angeles, California, and hundreds of others were believed to exist throughout the area. Physicians are urged to be on the alert for the disease, paying special attention to patchy scaling, alopecia, or inflammation of the scalp; in this connexion the value of examination with Wood's light is emphasized.

1470. Morgan (D. B.). **Report of a case of ringworm of the scalp in an adult.**—*J. Kans. med. Soc.*, 50, 5, p. 231, 1949.

The author reports a case of tinea capitis (*Microsporum audouini*) in a 38-year-old woman whose 10-year-old daughter was extensively infected by the same pathogen at Kansas City, Missouri. The mother was successfully treated by manual epilation and the application of salicylanilide ointment, but the child required X-ray epilation in addition to topical therapy.

1471. Behling (R. T.) & Markel (I. J.). **Ringworm of the scalp.**—*J. invest. Derm.*, 11, 4, pp. 239–242, 1948.

In an industrial town in Indiana with 5,810 schoolchildren, 431 developed tinea capitis (*Microsporum audouini*) and were treated locally either with a liquid consisting of 10 per cent. copper undecylenate, 5 per cent. undecylenic acid, and 1 per cent. aerosol A.T. and carbon tetrachloride or an ointment containing 5 per cent. salicylanilide, 1 per cent. hyamine 1622, and carbowax 1500. At the end of the school year, 96 cases remained which were not completely free from infection, giving a cure rate of 78 per cent. In only 10 of the refractory cases did the infection appear to be spreading, in 20 it was evidently stationary, and 23 manifested improvement. The average number of applications of the ointment in the 241 cases cured was 50, and of the liquid (22 cases) 26, while 72 patients responded favourably to a combination of ointment and liquid medication. The results of this study have confirmed the work of Schwartz and collaborators at Hagerstown, Maryland [No. 991], showing that a ringworm epidemic can be controlled by means of topical therapy.

1472. Reif (F. B.). **Ringworm of the scalp due to Microsporum audouini during pregnancy.**—*Arch. Derm. Syph., Chicago*, 59, 6, pp. 662–663, 1949.

Particulars are given of a case of tinea capitis (*Microsporum audouini*) in a pregnant 18-year-old negress at Niagara Falls, New York, infection having been contracted from a 12-year-old brother.

1473. Swartz (J. H.), Rockwood (Ethel M.), & Glicklich (E. A.). **A survey of tinea capitis, including favus.**—*Arch. Derm. Syph., Chicago*, 60, 4, pp. 486–499, 7 figs., 1 graph, 1949.

A study of the incidence of the fungi concerned in 288 cases of tinea capitis in the Massachusetts General Hospital, Boston, during the period from 1st January, 1941, to 31st December, 1946, showed *Microsporum lanosum* [*M. canis*] to be responsible for the majority (188 or 65·3 per cent.), followed by *M. audouini* (73 or 25·4 per cent.) and *Trichophyton schoenleini* (22 or 7·6 per cent.). The disease (exclusive of the favus form) affected 165 males and 101 females (62 and 38 per cent., respectively). Of 73 cases associated with *M. audouini*, 55 (75 per cent.) were male and 18 (25 per cent.) female, the corresponding figures for *M. canis* in 183 cases being 101 (55 per cent.) and 82 (45 per cent.), respectively. The average age of the patients, of whom the youngest was six months and the oldest 20 years, was 6 years and 2 months. Two cases are presented (boys of 6 and 14 years) in each of which favus had

been present in the family for four successive generations. In one case the finger nails were involved and in the other the glabrous skin, in addition to the scalp.

1474. Carney (R. G.). **Inflammatory ringworm due to Trichophyton faviforme : report of seventeen cases.**—*Arch. Derm. Syph., Chicago*, 59, 2, pp. 209–216, 4 figs., 1949.

Of 39 cases of inflammatory ringworm of the glabrous skin, beard, and scalp studied at the University Hospitals, Iowa City, 17 were caused by *Trichophyton faviforme*, eight by *T. mentagrophytes*, two each by *Microsporum lanosum* [*M. canis*] and *M. fulvum*, and one each by *M. audouini* and *T. rubrum*. In one case the organism was not identified and in the remaining seven cases cultures could not be obtained, but *T. faviforme* was suspected in three of them from the microscopic appearance of the hairs. This fungus, first recognized by Sabouraud in 1893, was only isolated once in the United States until 1942, but it now appears to be a more common cause of inflammatory ringworm than was hitherto believed. Manual epilation, wet dressings, and mild fungicides gave beneficial results in the cases here reported. The cultural and morphological characters of the pathogen are described.

1475. Appel (B.) & Ansell (H. B.). **Large spores (macroconidia, fuseaux) of Microsporum canis in vivo : report of two cases.**—*Arch. Derm. Syph., Chicago*, 59, 2, pp. 168–174, 5 figs., 1949.

The macroconidia of *Microsporum canis* can be produced *in vivo* in the hair of infected children. Two cases, both in females, one 16 months and the other 3½ years, are reported from the Boston City Hospital in support of this statement, which does not seem to have been previously made in the literature on the subject.

1476. Slaughter (J. C.) & Cawley (E. P.). **Infection of the glabrous skin instigated by the fungus Trichophyton sulfureum. Report of a case.**—*J. invest. Derm.*, 9, 2, pp. 63–64, 1 fig., 1947.

Trichophyton sulphureum was isolated from skin scrapings from the right knee of a four-year-old patient, a farmer's daughter, at the University of Michigan Hospital, and is presumed to have been responsible for the eruption, which was accompanied by extensive secondary lesions on other parts of the body. The application of undecylenic compounds to the primary site of infection resulted in a cure within 14 days.

1477. Dobes (W. L.). **Favus : occurrence in Georgia. Report of ten cases.**—*Urol. cutan. Rev.*, 52, 12, pp. 729–734, 4 figs., 1948.

Ten cases of favus (*Achorion* [*Trichophyton*] *schoenleini*) from Georgia are briefly described. The clinical picture may be atypical and varied. The newer fungicides, such as undecylenic acid and salicylanilide, proved ineffectual in the therapy of the disease, but roentgen-ray epilation was successful. There are stated to be no previous reports of favus from Georgia. Nine of the ten cases under investigation occurred in one family, and four generations were involved.

1478. Robbins (S. J.). **Favus in a rural community of New York.**—*Arch. Derm. Syph., N.Y.*, 58, 7, pp. 180–183, 2 figs., 1948.

Three cases of favus of the scalp (*Achorion* [*Trichophyton*] *schoenleini*) are reported from Greenport, Long Island, a rural community with a population of 4,500, about 96 miles from New York City. All three patients were native-born; one was a 15-year-old girl and the other two 33- and seven-year-old males (father and son). The disease produced different clinical manifestations in each case, but the microscopic observations, including favic chandeliers and chlamydospores, were similar in all three.

1479. Baer (R. L.) & Muskatblit (E.). **Extensive Trichophyton purpureum infection, with nevoid anomaly of the skin : report of a case, together with mycologic and physiologic studies.**—*Arch. Derm. Syph., Chicago*, 56, 6, pp. 834–845, 6 figs., 1947.

A case is reported of a naevoid anomaly of the skin in a 24-year-old male, associated with a generalized and unusually extensive infection by *Trichophyton purpureum* [*T. rubrum*]. It is suggested that the naevoid anomaly, leading to an excess of horny tissue and a relative lack of sweat, may have been a factor in accentuating the susceptibility of the skin to the fungal infection. The patient readily responded to treatment with 'pragmatar' (Smith, Kline & French Laboratories), an oil in water emulsion cream containing coal tar, sulphur, and salicylic acid.

1480. López-Fernández (J. R.). **Primer caso uruguayo de 'piedra blanca'.** [First Uruguayan case of 'piedra blanca'.]—*An. Inst. Hig. Montevideo*, 2, 1, pp. 36–43, 9 figs., 1949.

The first case of 'piedra blanca' is reported from Uruguay, the subject being a 27-year-old male student. Interesting features of the disease, the agent of which was identified as *Trichosporon beigelii* [No. 836], were its sporadic character, the exclusive presence of white nodules, and the absence of lesions in the parasitized hairs.

1481. Hadida (E.), Marill (F. G.), & Morère (P.). **Favus généralisé avec determinations dermo-hypodermiques, ganglionnaires et septicémie favique.** [Generalized favus with dermo-hypodermic and ganglionic determinations and favic septicaemia.]—*Bull. Soc. franç. Derm.*, 55, 1, 28–29, 1948.

Clinical and histological particulars are given of a case of generalized favus due to a species of *Achorion* in a 16-year-old female Algerian native.

1482. Sagher (F.). **Histologic examinations of fungous infections of the nails.**—*J. invest. Derm.*, 11, 5, pp. 337–357, 7 figs., 1948.

At the Rothschild-Hadassah University Hospital, Jerusalem, 55 nails of 14 patients were histologically examined. By this procedure different centres of localization, arrangement, and invasion points of *Trichophyton purpureum* and *T. violaceum* could be distinguished. The two fungi were found to cause damage varying in kind and degree. Undetermined fungi observed during the ordinary potassium hydroxide examination of four nails of three patients were shown by histologic study to be lying on top of the nail plate without entering it, suggesting the possibility that the former procedure does not always suffice to establish the diagnosis of onychomycosis. Histologic examination of the nail bed tissues after evulsion of the infected nails revealed no fungal invasion, but masses of spores and occasional mycelia were found in the subungual horny masses.

1483. Vanbreuseghem (R.). **Description d'un nouveau dermatophyte isolé au Congo belge, Sabouraudites (Microsporon) Duboisi, n.sp.** [Description of a new dermatophyte isolated in the Belgian Congo, *Sabouraudites* (*Microsporon*) *duboisi* n.sp.]—*Ann. Parasit. hum. comp.*, 24, 3–4, pp. 252–258, 2 pl., 1949.

A description is given of the cultural characters of a fungus isolated from a circinate herpes on the face of a European infant in the Belgian Congo. The organism is named [without a Latin diagnosis] *Sabouraudites* (*Microsporon*) *duboisi* n.sp. The fungus forms abundant 6-celled fuseaux, 50 to 60 by 8 to 9 μ, almost cylindrical, with a pointed apex and inserted on a long, thin pedicel, and verrucose.

1484. Sartory (A.), Sartory (R.), & Altweg (J.). **Dermatomycose trichophytiforme due à une espèce nouvelle du genre Aleurisma.** [Trichophytiform dermatomycosis due to a new species of the genus *Aleurisma*.]—*Bull. Acad. Méd., Paris*, **133**, 25–26, pp. 519–523, 4 figs., 1949.

A species of *Aleurisma* isolated in Paris from squamae of the scalp and hair of a $5\frac{1}{2}$-year-old boy suffering from a trichophytiform dermatomycosis is regarded as new (though presenting certain analogies with *A. guilliermondi*, *A. lugdunense*, and *A. arloingi*) [but is unnamed]. Isolation proved difficult and necessitated the use of coagulated serum; growth was slow on Sabouraud's glucose agar. The cerebriform, vermicular, café-au-lait-coloured, later greenish colonies secrete a yellow pigment. Pyriform or foliaceous, sessile, non-caducous aleuria are borne exclusively, and nearly always terminally, on tapering hyphae, branching dichotomously, and measure 1 to 4 μ in length. The circinate lesions can be experimentally reproduced in guinea-pigs.

1485. Sartory (A.), Sartory (R.), Meyer (J.), & Malgras (J.). **Un nouveau Microsporum parasite de la peau (Microsporum pseudoumbonatum).** [A new *Microsporum* parasitic on the skin (*Microsporum pseudo-umbonatum*).]—*C.R. Acad. Sci., Paris*, **229**, 2, pp. 138–140, 1949.

Microsporum pseudo-umbonatum n.sp. [without a Latin diagnosis], isolated from the squamae of erythematous lesions on the foot of a 25-year-old female, forms on Sabouraud's conservation medium white, circular, raised colonies, with an almost smooth centre and downy periphery; after three weeks concentric downy and smooth zones develop. The profusely septate mycelium is 1·2 to 3·2 μ and the chlamydospores 3·6 to 6 μ in diameter; the aleuria, 1·2 to 2·4 μ in diameter, are free as in *Acladium* or inserted directly on the mycelium or at the end of a very short peduncle (0·5 μ). After a month pectinate organs (3 to 4 μ in width) and a few spindles, 10 to 36 by 3·6 to 7 μ, with two to six locules, are formed. Particulars are given of the cultural characters of the fungus on some other standard media.

1486. Vanbreuseghem (R.). **Contribution à l'étude des dermatophytes du Congo belge. Description du Trichophyton mégaspore T. rodhaini n. sp.** [A contribution to the study of the Dermatophytes of the Belgian Congo. Description of the megasporous *Trichophyton*, *T. rodhaini* n.sp.].—*Ann. Parasit. hum. comp.*, **24**, 3–4, pp. 243–251, 1 fig., 1949.

A description is given of the cultural characters of a fungus isolated from a case of circinate herpes in the pubic region of a European male who had spent some months in the Belgian Congo. The fungus is named [without a Latin diagnosis] *Trichophyton rodhaini* n.sp. In culture the fungus forms numerous round or pyriform aleuriospores, somewhat numerous chlamydospores, often terminal, sometimes in a chain, and sparse to rather numerous fuseaux, 13·5 to 45·9 (mean 29·7) by 4 to 6·7 (5·4) μ, clavate, and 4- to 5- to 6- (mostly 4)-celled.

1487. Vanbreuseghem (R.). **Contribution à la connaissance des dermatophytes du Congo Belge. Présence des Trichophyton glabrum, gourvili, et ferrugineum.** [Contribution to the knowledge of the dermatophytes of the Belgian Congo. Presence of *Trichophyton glabrum*, *gourvili*, and *ferrugineum*.]—*Ann. Soc. belge Méd. trop.*, **28**, 4, pp. 429–443, 2 figs., 1948. [Flemish summary.]

A review of previous literature on the dermatophytes of the Belgian Congo is followed by an account of the writer's studies on *Trichophyton ferrugineum*, isolated from eight cases of ringworm of the scalp, *T. glabrum* (three), and *T. gourvili* [but subsequently described as new as *T. rodhaini*: see No. 1486], from one case (in a European) of circinate herpes of the genital region.

1488. Carrasco (M. C.). **A tricofitia do coiro cabeludo do adulto (apresentaçao de um caso com alopecia cicatricial).** [Ringworm of the scalp in an adult (presentation of a case with cicatricial alopecia).]—*Gaz. méd. portug.*, 2, 1, pp. 123–127, 2 figs., 1949. [French and English summaries.]

A case of ringworm (*Trichophyton violaceum*) of 14 years' duration in a 54-year-old female is described. The resultant cicatricial alopecia was of the favus type and involved almost the entire scalp. The microscopic aspect of the diseased hairs was typical of an endothrix infection.

Commenting on the frequent immunity from ringworm in adults commonly associated with the evolution of the sexual glands, the author points out that this reaction is not absolute, but depends, on the one hand, on a set of organic factors, and on the other, on the parasitic species concerned.

1489. Ghosh (L. M.). **An analysis of 50,000 skin cases as seen in the out-patient department of the School of Tropical Medicine, Calcutta, during the five years from 1942 to 1946.**—*Indian med. Gaz.*, 83, 11, pp. 492–500, 1948.

The incidence of fungal infections among the 50,000 cases of skin disease included in this survey was as follows: actinomycosis 148, blastomycosis (none confirmed by laboratory findings) 8, erythrasma [*Nocardia minutissima*] 6, kerion 3, ringworm (body, hair, and scalp) 6,299, 944, and 39, respectively, Madura foot 3, moniliasis 135, sporotrichosis [*Sporotrichum schencki*] 3, thrush [*Candida albicans*] 2, and tinea versicolor [*Malassezia furfur*] 792. *Microsporum* infection of the scalp has not yet been observed in native children, most of the cases being European, Anglo-Indian, and Jewish juveniles from hill station schools. *Trichophyton gypseum* [*T. mentagrophytes*] has been found causing ringworm of the scalp in Nepali adults.

1490. Jillson (O. F.) & Huppert (M.). **The immediate wheal and the 24–48 hour tuberculin type edematous reactions to trichophytin.**—*J. invest. Derm.*, 12, 3, pp. 179–185, 1949.

As previously reported by others, urticarial reactions to trichophytin were observed in patients with (1) *Trichophyton rubrum* infections, (2) a history of atopy, and (3) recurrent lymphangitis. Likewise in confirmation of the experience of previous workers, the tuberculin type of sensitivity was abolished in all the 12 patients given intradermal injections of trichophytin. The urticarial type of sensitivity was not abolished by such injections in two patients who showed it before treatment, and it developed in three others at about the time their tuberculin sensitivity disappeared. An intense oedematous, somewhat delayed reaction was observed during the course of immunization in some cases. The present data corroborate the opinion that time and a constant supply of antigen are likely to be important factors in the production of the wheal response to trichophytin.

1491. Bocobo (F. C.) & Benham (Rhoda W.). **Pigment production in the differentiation of Trichophyton mentagrophytes and Trichophyton rubrum.**—*Mycologia*, 41, 3, pp. 291–302, 1949.

The pigment production of 50 strains of *Trichophyton mentagrophytes* and of 40 strains of *T. rubrum* was studied on Sabouraud's dextrose agar, potato dextrose agar, maize meal dextrose agar, and ammonium chloride dextrose agar. The appearance of pigment on the under surface seemed to depend on nitrogen as well as dextrose source. The strains of *T. mentagrophytes* produced no pigment on maize meal agar, whereas 38 strains of *T. rubrum* displayed the characteristic red colour, the remaining two strains having a pinkish pigmentation on the under surface. Culture of *T. rubrum* on casein hydrolysate

dextrose agar at pH 4 and on maize meal dextrose agar at pH 4 and 4·5 showed only a cream to yellow pigmentation, instead of red-purple, which developed at other pH levels.

1492. Hollaender (A.) & Emmons (C. W.). **Induced mutations and speciation in fungi.**—*Cold Spr. Harb. Symp. quart. Biol.*, 11, pp. 78–84, 1 pl., 4 graphs, [? 1948].

When the conidia of *Trichophyton mentagrophytes* were exposed to ultra-violet radiation (2537 or 2650 A) and 90 to 99 per cent. were killed, up to 40 per cent. of those that survived gave rise to colonies strikingly different from the parent, and these mutations were permanent. Some resembled other dermatophytes generally recognized as distinct species, and many others displayed such distinct characteristics that, were their origin unknown, they would probably be assigned by a taxonomist to new species. Brief descriptions are given of some representative strains, and the paper concludes with a detailed account of the technique used by the authors in quantitatively irradiating fungal spores with ultra-violet rays.

1493. Pätiälä (R.). **Essais de remplacement du milieu d'épreuve glycosé de Sabouraud par la gélose Czapek-Dox.** [Attempts to replace Sabouraud's glucose test medium by Czapek-Dox agar.]—*Ann. Parasit. hum. comp.*, 22, 3–4, pp. 237–241, 1947. [Received April, 1949.]

Evidence is presented showing that Czapek's medium (with sucrose or glucose) does not allow the formation of the typical macroscopic characters necessary for the determination of dermatophytes. The original Czapek medium (with sucrose) gives adequate microscopic morphology, though the glucose medium does not. Sabouraud's medium remains the basis for the study of the dermatophytes.

1494. Laskaris (T.). **A simple efficient method for primary isolation of dermatophytes.**—*Amer. J. clin. Path.*, 19, 1, p. 95, 1949.

The following method has been successfully used for the pure culture of dermatophytes during the last seven years. Skin or nail scrapings are placed in a sterile Petri dish and covered for one minute or longer, according to thickness, with a mixture containing an equal volume of 1 in 1,000 mercuric chloride solution and 95 per cent. alcohol. They are then transferred by means of a flamed loop to Sabouraud's dextrose agar slants, on which growth may be expected from the third day onwards.

1495. Grixoni (F.). **Rilievi sull'influenza della vitamine sintetiche sullo sviluppo culturale di determinate Ifomiceti patogeni per l'Uomo.** [Observations on the influence of the synthetic vitamins on the cultural development of certain Hyphomycetes pathogenic to Man.]—*Boll. Soc. ital. Biol. sper.*, 24, 5, pp. 638–639, 1948.

The development in pure culture of *Trichophyton gypseum asteroides* [*T. mentagrophytes*], *T. crateriforme* [*T. tonsurans*], and *Microsporum lanosum* [*M. canis*] was accelerated in a noteworthy degree over a period of 15 to 25 days by the addition to the media of weak concentrations (0·2, 0·5, and 1 mg. per c.c.) of para-aminobenzoic, pantothenic, and folic acids, vitamin B_2, and vitamin B_6.

1496. Bocobo (F. C.). **Mycologic technique in medical practice.**—*J. philipp. med. Ass.*, 25, 8, pp. 395–399, 1949.

Full directions are given for the application of the potassium hydroxide mount technique in the diagnosis of superficial and deep-seated mycoses.

1497. Curry (J.). **A droplet culture method for fungus isolation, and a staining method for diagnosis of epidermophytosis.**—*Brit. J. Derm. Syph.*, 61, 2, pp. 54–58, 18 figs., 1949.

A method is described facilitating the isolation of pathogenic fungi from small amounts of material in the presence of gross contamination. After drying for a few days between two microscope slides, the material was broken up by firmly rubbing the slides together. Droplets of Sabouraud's dextrose peptone agar and 3 per cent. malt extract in 2 per cent. agar were distributed on the inner surface of sterile Petri dish covers. Each droplet was inoculated with a fragment of the material and the dishes left at room temperature. As soon as a good growth of what appeared to be the pathogen was seen, three transfers were made to test tube slants of Sabouraud's agar. By this procedure *Trichophyton schoenleini* was isolated from a case limited to the members and close contacts of family, and cultures were also obtained of *T. rubrum*, *T. gypseum* [*T. mentagrophytes*], and *Microsporum audouini*.

A method of staining skin or nail scrapings consists in maceration overnight in caustic soda at 37° C., washing and centrifuging with tap water, smearing the deposit on a slide, and after drying, fixing by passage through a flame; half-an-hour's immersion in chlorozol black E in 75 per cent. spirit; and washing with methylated spirit.

1498. Raubitschek (F.) & Sagher (F.). **Hanging-drop preparation as a routine method for culturing material from fungous diseases.**—*Acta med. orient.*, 7, 11–12, pp. 213–216, 1 fig., 1948.

The material used in these comparative tests of the hanging drop (maltose broth) and maltose agar slant methods for the culture of dermatophytes consisted of 349 specimens from mycotic infections of 309 persons. Positive results were obtained in 116 cases (33 per cent.) by either or both methods, the figures for the individual species being as follows: *T*[*richophyton*] *violaceum* positive in both methods 42, positive in slant culture, negative in hanging drop 11, positive in hanging drop, negative in slant 13; *T. gypseum* [*T. mentagrophytes*] 13, 0, and 6, respectively; *T. purpureum* [*T. rubrum*] 5, 5, and 2; *T. crateriforme* [*T. tonsurans*] 1, 0, and 1; *A*[*chorion*] [*T.*] *schoenleini* 5, 2, and 5; *Candida albicans* 1, 2, and 0; and undetermined 0, 1, and 1. The main advantage of the hanging drop over the slant method is the short time necessary for the identification of the causal organism (two to four days as compared with two to four weeks), so that the correct treatment may be instituted seven to ten days after the patient is first seen.

1499. Muskatblit (E.). **Staining of fungi in scales and hairs : method of staining with polychrome methylene blue.**—*Arch. Derm. Syph., Chicago*, 59, 2, pp. 236, 242, 6 figs., 1949.

The author's method for the staining of fungi in scales and hairs involves the following procedures: (1) preparation of the material (breaking-up of scales); (2) pasting of the material on a slide by means of raw egg white and drying; (3) fixation and de-fatting in Carnoy's fluid and drying; (4) staining with polychrome methylene blue for five minutes; (5) washing in water; (6) decolorizing with 1 per cent. acetic acid; (7) washing in water; (8) in absolute alcohol; and (9) in xyol (dimethylbenzene); and (10) mounting in Canada balsam or clarite. The fungi in the figures of stained preparations are *Microsporum audouini*, *Trichophyton violaceum*, *Achorion* [*T.*] *schoenleini*, *T. purpureum* [*T. rubrum*], *Malassezia furfur*, and *Actinomyces minutissimus* [*Nocardia minutissima*].

1500. Huber (W. M.) & Caplin (S. M.). **Simple plastic mount for permanent preservation of fungi and small arthropods.**—*Arch. Derm. Syph., Chicago*, 56, 6, pp. 763–765, 1947.

A plastic medium, polyvinyl alcohol (known commercially as 'PVA'), combined with phenol and lactic acid (56:22:22 per cent.), has been found effective in the dehydration and clearing of specimens and in the formation of permanent, hard, hyaline mounts for the preservation of fungi and small arthropods of interest to dermatologists.

1501. Hellier (E.). **Advances in dermatology.**—*Practitioner*, 166, 964, pp. 291–297, 1948.

A brief reference is made in the course of this survey to recent research on fungicides for the cure of dermatophytoses. Two of the most active of the long-chain fatty acids are the undecylenic and propionic, of which the former, combined with zinc undecylenate and an emulsion base or talc, is now available in Great Britain under the name of 'Fungicidal Ointment and Powder' (Boots, Ltd.).

A reassessment of the whole problem of tinea capitis therapy has been necessitated by the world-wide epidemic of this disease. The use of Wood's light has proved very helpful in diagnosis. *Microsporum audouini*, the principal agent of ringworm of the scalp, can sometimes be cured by local fungicidal applications in conjunction with manual epilation, but for the present X-ray epilation remains the treatment of choice. On the other hand, the less common *M. lanosum* [*M. canis*] will usually yield to local therapy alone.

1502. Felsher (M.). **Salicylanilide therapy in tinea capitis.**—*Arch. Derm. Syph., N.Y.*, 58, 1, pp. 56–63, 1948.

The results of topical applications of a number of old and new fungicides in cases of tinea capitis at the Northwestern University Medical School, Chicago, were disappointing, and the same was true of the oral administration to boys of diethylstilbestrol and male hormone (also given parenterally). However, treatment with an ointment containing 5 per cent. salicylanilide in 'carbowax 1500' (a mixture of polyethylene glycols with an average molecular weight of about 500) affected a cure in 105 out of 150 children with ringworm of the scalp due to *Microsporum audouini*. The shortest period required for recovery was three and the longest 14 months. In the mild and moderately severe forms of the disease this ointment gave results comparing favourably with those of X-ray epilation, but the latter procedure still proved more efficient in severe cases.

1503. Mazzini (M. A.) & Elena (J. P.). **Tratamiento de las tiñas tonsurantes.** [Treatment of scalp ringworms.]—*Rev. argent. Dermatosif.*, 32, 3–4, pp. 267–268, 1948.

This is a preliminary note describing the successful treatment of three cases of tinea tonsurans in five-, six-, and nine-year-old boys by topical applications of iodine (0·50 gm.), potassium iodide (2 gm.), and distilled water up to 100 c.c.

1504. Mottram (M. E.) & Hill (H. A.). **Radiation therapy of ringworm of the scalp.**—*Calif. Med.*, 70, 3, pp. 189–193, 3 diags., 1949.

A recent epidemic of tinea capitis in San Francisco schoolchildren, with an increase of incidence from 268 in 1944 to 616 in 1946, followed by a sharp decline, has revived considerable interest in the methods of therapy of this disease. The most effective treatment for infection by *Microsporum audouini*, the principal agent, is X-ray epilation, the various forms of which are briefly

presented and compared. A simple and reliable cure may be effected by a modification of the four-point technique, which was successful in an entire group of 125 cases, comparing favourably with the best results reported by the use of other methods.

1505. Sperber (P. A.). **Whale oil, trichophytin, and autoserotherapy in the treatment of epidermophytosis.**—*Ann. Allergy*, 7, 1, pp. 91–102, 1949.

Whale (*Baloena mysticus*) oil has been tested in the treatment of epidermophytosis at Providence, Rhode Island, over a period of 11 years with very promising results. The objectionable odour can be masked by the addition of oil of cassia and oil of cloves, both of which possess some fungicidal activity. In the laboratory the oil was markedly fungistatic to *Trichophyton mentagrophytes*, *T. tonsurans*, *T. acuminatum* [*T. sabouraudi*], *T. violaceum*, *T. purpureum* [*T. rubrum*], *Epidermophyton* [*T.*] *interdigitale*, *E. floccosum*, *E.* [*T.*] *rubrum*, *Achorion* [*T.*] *quinckeanum*, *A.* [*T.*] *schoenleini*, *Microsporum canis*, *M. felineum* [*M. canis*], *M. audouini*, and *Monilia* [*Candida*] *albicans*. These results were confirmed by clinical experience, the treatment being wholly successful in roughly 100 per cent. of the mild cases and 80 and 90 per cent. in the moderately severe to severe. Trichophytin injections given intradermally were combined with the oil in cases of failure with the latter alone, and this joint treatment was successful in about half the 46 patients involved. In 24 cases resistant to oil and trichophytin therapy autoserum injections were given, with favourable results in 18, while 24 out of 26 patients were benefited by a combination of oil and autoserum.

1506. Murphy (J. C.). & Rothman (S.). **Artificially induced resistance of Trichophyton gypseum to pelargonic acid.**—*J. invest. Derm.*, 12, 1, pp. 5–6, 1949.

By gradual increase of the concentration of pelargonic acid in liquid and later in Sabouraud's medium, the concentration tolerated by *Trichophyton gypseum* could be increased from 0·002 to 0·012 per cent., or six times the original level. Presumably fatty acid-sensitive strains can thrive only in areas that do not contain sebaceous glands, as in the location of tinea pedis. In an addendum written on 2nd December, 1948, the fungus was stated to be growing well on a medium containing 0·014 per cent. pelargonic acid.

1507. Moriamé. **Un an d'expérience du traitement des teignes microsporiques par applications locales de pénicilline.** [A year of experience in the treatment of microsporous ringworms by local applications of penicillin.]—*Arch. belg. Derm. Syph.*, 4, 3, pp. 143–146, 1948.

The writer describes the successful treatment of 30 out of 40 (75 per cent.) cases of juvenile ringworm (*Microsporum*) in Brussels by local applications of an ointment consisting of 70 parts lanoline, 20 of groundnut oil, and 10 of water, with the addition of 200,000 units of penicillin.

1508. Gaté (J.), Coudert (J.), & Cotte (J.). **Action expérimentale et clinique de la tyrothricine sur quelques dermatophytes.** [Experimental and clinical action of tyrothricin on some dermatophytes.]—*J. méd. Lyon*, 29, 686, pp. 529–532, 1948.

Particulars are given of the application of tyrothricin in the treatment of ringworms (*Microsporum audouini* and *Trichophyton violaceum*) experimentally induced in guinea-pigs; of its action *in vitro* on *M. audouini* and *M. lanosum* [*M. canis*]; and of the promising results obtained in the temporary arrest of infection, pending epilation by X-rays, in 76 cases of human trichophytosis and microsporiosis, using the antibiotic at a dosage of 1 mg. per c.c. of an alcohol-acetone solution or per gm. of a lanoline–vaseline ointment, with or without castor oil.

1509. Carrick (L.). **Treatment of tinea capitis in general practice.**—*J. Mich. med. Soc.*, 48, 2, pp. 213–215, 1949.

Of 98 cases of tinea capitis diagnosed at Detroit, Michigan, during a two-year period beginning in June, 1946, one was caused by *Microsporum lanosum* [*M. canis*], one by *Trichophyton granulosum*, and the rest by *M. audouini*. The age-groups most commonly affected were from three to eight years, inclusive, the ratio of boys (75) to girls (23) being of the order of 3:1. Of 55 cases due to *M. audouini* treated by local therapy with undecylenate-undecylenic ointment, 54 (98 per cent.) were cured in an average period of five months. Suggestions for the control of the ringworm epidemic are presented.

1510. Peck (S. M.). **A new method for the evaluation of antifungicidal chemicals.**—*Trans. N.Y. Acad. Sci.*, Ser. II, 11, 4, pp. 112–117, 1949.

A method is presented for the assay of fungicides which aims at the demonstration, not only of their fungicidal and fungistatic properties, but of their effects on the metabolism of the test fungi in relation to trichophytin formation. This is a valuable criterion, since trichophytin is identified with the antigens elaborated in the course of fungal disease which are responsible for the allergic manifestations frequently associated with them. Some typical examples of the application of the new method to well-known and recently developed preparations are given.

1511. Haber (H.), Brain (R. T.), & Hadgraft (J. W.). **Treatment of ringworm of the scalp.**—*Brit. med. J.*, *1949*, 4628, pp. 626–627, 1949.

The chemical properties of salicylanilide and the literature on its use in the treatment of ringworm of the scalp are reviewed. Of 27 cases (20 due to *Microsporum felineum* [*M. canis*], six to *M. audouini*, and one to *Trichophyton sulphureum*) treated with an ointment consisting of 5 gm. salicylanilide, 10 ml. Crill No. 6 (a non-ionizing, surface-active compound), 2 ml. solution of 2 per cent. citric acid and 1 per cent. sodium propionate, and carbowax 1500 to 100 gm., 18 (75 per cent.) were cured in periods ranging from three to 16 weeks. No significant differences were observed in the responses to treatment between the human and animal types of ringworm.

1512. Snow (J. S.) & London (I. D.). **Management of ringworm of the scalp. Present status of the epidemic in the Birmingham area.**—*J. med. Ass. Ala.*, 17, 10, pp. 333–336, 1948.

Of 24 cases of tinea capitis treated in private practice at Birmingham, Alabama, over a period of a year, 18 were found to be due to *Microsporum audouini*, five to *M. lanosum* [*M. canis*], and one to *M. gypseum*. Consultation with other local dermatologists respecting a further 69 cases treated by them revealed that the total of 93 for the year was three to four times the number seen annually before the war. Of the 60 cases in which the causal organism was identified, 47 (78 per cent.) were due to *M. audouini*. The treatment and management of the disease is discussed, with emphasis on the value of Wood's light, culture for identification of the fungus, and the use of new remedies in addition to X-ray epilation.

1513. Heinemann (B.). **Fungistatic properties of salicil and related compounds.**—*J. invest. Derm.*, 9, 6, p. 277, 1947.

In vitro fungistatic activity is recorded for salicil, benzoestrol, diethylstilboestrol, salicylic acid, and dibromosalicil towards 12 human pathogens. The last-named compound exerted no fungistatic effect in the maximum concentration (1 in 20,000) obtainable in the dextrose agar culture medium. Salicil, benzoestrol, and diethylstilboestrol inhibited the growth of most of the fungi tested, while salicylic acid was effective against all, but in lower dilutions.

1514. Beerman (H.). **The absence of effect of 2,4-dichlorophenoxyacetic acid (2,4-D) on certain fungi in culture.**—*J. invest. Derm.*, 9, 6, p. 283, 1947.

In preliminary experiments to determine the value of 2,4-dichlorophenoxyacetic acid in (1) the inhibition of the growth of saprophytic fungi (represented by *Aspergillus fumigatus*) in cultures of dermatophytes, and (2) the differentiation between *Microsporum audouini* and *M. canis*, the chemical was found to be useless for both purposes.

1515. Horáček (J.) & Polster (M.). **Fungicide effect of phenol derivates.**—*Dermatologica*, 96, 5, pp. 342–350, 1948. [German and French summaries.]

In search for effective medicaments for the therapy of foot mycosis (*Trichophyton* and *Epidermophyton* spp.) at Brno, Czechoslovakia, the authors carried out experiments with halogenized para-nitrophenols, chlorinated phenols, and phenol derivatives into which a nitro group had been introduced in the para position. The most effective proved to be the monohalogen derivatives, 2-chlorine-4-nitrophenol, 2-bromine-4-nitrophenol, and 2-iodine-4-nitrophenol. The first-named was fungicidal to *T. gypseum asteroides* [*T. mentagrophytes*] at 1 in 50,000 and to *E.* Kaufmann-Wolf [*T. interdigitale*] and *Penicillium glaucum* at 1 in 100,000. The three substances, in the form of 1 per cent. solutions in 50 per cent. alcohol, were tested for their therapeutic action in 11 cases of refractory interdigital mycosis. Within a week all symptoms of the disease disappeared and there was only one relapse during the six-month period of observation.

1516. Reiss (F.) & Doherty (D.). **Fungous infections of the skin and scalp : a new approach to their treatment.**—*N.Y. St. J. Med.*, 49, 16, pp. 1939–1943, 1949.

Of 153 patients treated at the Bellevue Medical Center, New York University, with an ointment containing 5 per cent. pyridyl-3-zinc mercaptide, 64 were suffering from tinea pedis (*Trichophyton gypseum* [*T. mentagrophytes*] and *T. purpureum* [*T. rubrum*]), 31 from tinea corporis, 48 from tinea capitis (*Microsporum lanosum* [*M. canis*], *M. audouini*, and *T. violaceum*), and 10 from tinea versicolor [*Malassezia furfur*]. The use of the salve resulted in 61 cures and 53 improvements. The percentages of cures in the tinea pedis, tinea corporis (tinea circinata category), and tinea capitis groups were 35·9, 58·3, and 41·6, respectively, the corresponding figures for improvements being 29·6, 33·3, and 29·1, respectively. Three of the patients with tinea versicolor were cured and six improved.

1517. Serri (F.). **Influence of p-aminobenzoic acid on the growth of some dermatophytes.**—*Acta vitaminol.*, 2, pp. 73–77, 1948. [Abs. in *Chem. Abstr.*, 43, 5, p. 1826, 1949.]

The addition of one part of para-aminobenzoic acid to 50 to 2,500 parts of various culture media retarded and inhibited the growth of *Sporotrichum epigaeum*, *Trichophyton gypseum asteroides* [*T. mentagrophytes*], *T. pedis* [*T. mentagrophytes*], and *T. rosaceum*. At 1 in 25,000 to 1 in 10^7 the growth substance exerted no influence on the development of *S. epigaeum*, and at 1 in 500,000 to 1 in 10^7 it stimulated that of the *T.* spp.

1518. Barail (L. C.). **Testing of fungicidal materials against pathogenic fungi.**—*Amer. Dyest. Reptr*, 37, 8, pp. 257–258, 281–282, 1948.

Manufacturers of hosiery, underwear, shoe and hat linings, etc., in the United States are becoming increasingly interested in the treatment of their products for the prevention of contamination by various dermatophytes. Those most commonly used in the trials of fungicides carried out by the United States Testing Company, Inc., are *Trichophyton gypseum* [*T. mentagrophytes*],

T. purpureum [*T. rubrum*], *T. sulphureum*, *Microsporum audouini*, and *Epidermophyton inguinale* [*E. floccosum*]. Of over 300 compounds subjected to very searching tests, only a few long-chain phenyl mercuric derivatives satisfied all requirements in respect of non-toxicity, lack of objectionable colour or odour, ready miscibility and compatibility with various materials, ease of application, and so forth, while the fungicidal properties of one of them were definitely outstanding.

1519. Craps. **Considérations sur l'action locale de la penicilline dans les teignes.** [Considerations on the local action of penicillin in ringworms.]—*Arch. belg. Derm. Syph.*, 4, 3, pp. 160–164, 1948.

This is a discussion of the etiology of a severe folliculitis developing in certain patients treated against ringworm (*Microsporum audouini*) with an ointment consisting of 5 gm. each of rose water and lanoline, 10 gm. neutral vaseline, and 100,000 units of penicillin, and of the manner in which the drug operates against fungal parasites in general and those causing ringworm in particular.

1520. McGavack (T. H.), Weiner (D.), Lo Cascio (A.), Bell (Mary), & Boyd (L. J.). **Influence of tetra-chloro-para-benzoquinone on human fungous infections.**—*Arch. Derm. Syph., Chicago*, 59, 1, pp. 94–100, 1949.

Tetra-chloro-para-benzoquinone (spergon) has been used in 155 cases of human dermatomycoses as an ointment in concentrations ranging from 5 to 50 per cent. Of 96 patients infected by *Microsporum audouini*, 24 (25 per cent.) were permanently cured and all but six of the remainder benefited. Of 39 with other types of tinea capitis (*M. felineum* [*M. canis*] in 35 and *M. lanosum* [*M. canis*] in four), 24 (61·6 per cent.) were cured and all the rest improved. Seven out of 11 patients suffering from epidermatophytosis were cured and three benefited by the use of the fungicide as a dusting powder in the shoes and on the lesions.

1521. Vilanova (Y.), Casanovas (M.), García Valdecasas (F.), & Puig Muset (P.). **Investigaciones sobre les efectos fungicidas y fungistáticas de los acides grasos obtenido del cabello humano del adulto.** [Investigations on the fungicidal and fungistatic effects of the fatty acids obtained from human adult hair.]—*Med. clín., Barcelona*, 10, 6, pp. 380–382, 2 figs., 1948.

On Sabouraud's agar the fungistatic action of the fatty acids extracted from adult human hair [No. 998] is enhanced by acidity of the medium; at pH 5 a 1 in 250 dilution completely inhibits the development of *Trichophyton gypseum* [*T. mentagrophytes*], which is merely retarded at pH 7. In glucose peptone broth inhibition of the sporulated superficial mycelium occurs, only a sterile mycelium being formed at the bottom of the tube. In the test of fungistatic activity by the diffusion zone method, higher concentrations (20 per cent.) are requisite to produce a zone of inhibition of growth. Fungicidal effects could not be demonstrated with the dilutions tested.

1522. Vilanova (Y.), Casanovas (M.), García Valdecasas (F.), & Puig Muset (P.). **Las propiedades fungistáticas y fungicidas. Acido undecilénico. Ensayos experimentales y clinicos.** [Fungistatic and fungicidal properties. Undecylenic acid. Experimental and clinical tests.]—*Med. clín., Barcelona*, 11, 4, pp. 224–227, 1 fig., 1948.

Undecylenic acid proved to be superior to fatty acids [see next entry] in the inhibition and destruction of *Trichophyton gypseum* [*T. mentagrophytes*] in *in vitro* experiments, killing the spores in 10 minutes at 10 per cent. Particulars are also given of 15 cases successfully treated with the compound.

1523. Vilanova (Y.) & Casanovas (M.). **Acción fungistática y fungicida de las esencias vegetales y de otros perfumes.** [Fungistatic and fungicidal action of plant essences and other perfumes.]—*Act. derm.-sif., Madr.*, 40, 4, pp. 393–405, 5 graphs, 1949.

The action of a number of essential oils on *Trichophyton gypseum* [*T. mentagrophytes*] was tested *in vitro*. Neroli (sour orange), citronelol (*Cymbopogon nardus*), oil of Portugal (lemon), eugenol (clove), and geraniol (lemon) were the most active inhibitors at concentrations of 2·5, 2·5, 2·5, 5, and 10 per cent., respectively. Geraniol was fungicidal at 20 per cent. (30 minutes), citronelol at 10 per cent., neroli at 20 per cent., and eugenol at 5 per cent. (all 10 minutes), but oil of Portugal permitted the growth of the fungus even after half-an-hour's exposure.

1524. Bushby (S. R. M.) & Stewart (Sheila M.). **Experimental assessment of therapeutic efficiency of antifungal substances.**—*Brit. J. Derm. Syph.*, 61, 10, pp. 315–321, 1 graph, 1949.

The significance of *in vitro* activity as a measure of therapeutic efficiency was assessed by a comparison of the fungicidal properties in laboratory tests of 43 compounds of diverse structure with their performance in the treatment of experimental infection by *Trichophyton mentagrophytes* in guinea-pigs. Strong activity in the presence of serum at high dilution of the aqueous saturated solution does not necessarily connote a comparable efficiency *in vivo*. The increased activity of substances when incorporated into a penetrating base is evidence that skin penetration is more essential than high *in vitro* activity. The most satisfactory anti-fungal preparation for clinical use is probably a mixture of the following in a penetrating base: zinc naphthenate, zinc undecylenate, phenyl mercuric acetate, and terpineol, with dimethylianthrene and methyl salicylate as aids to penetration.

1525. Brown (Rachel) & Hazen (Elizabeth L.). **Activation of antifungal extracts of Actinomycetes by ultrafiltration through gradocol membranes.**—*Proc. Soc. exp. Biol., N.Y.*, 71, 3, pp. 454–457, 1949.

The antagonism towards *Candida albicans*, *Cryptococcus neoformans*, *Trichophyton mentagrophytes*, and *T. rubrum* of partially purified extracts of two soil Actinomycetes, Nos. 47205 and 48240 [cf. No. 1066] was sharply increased by filtration through gradocol membranes prepared by the method of Bauer and Hughes (*J. gen. Physiol.*, 18, p. 143, 1934).

1526. Sing (T. B.) & Verhagen (B. A.). **Comparative investigation into the fungistatic action of fatty acids and other anti-mycotica in vitro and some observations on the increasing resistance of fungi against drugs.**—*Dermatologica*, 99, 2–3, pp. 139–151, 2 figs., 1949. [German and French summaries.]

The fungistatic action of various fatty acids was compared with that of a number of other chemicals used in the treatment of dermatomycoses. The test organism was *Trichophyton mentagrophytes* and all the chemicals were introduced in ointment form into a hole in the Sabouraud's agar medium. The very important effect of the ointment base on the diffusion of the antimycotic agents into the surrounding substratum was clearly demonstrated. The results obtained with 'curamycon' (Unicura), containing caproic, caprylic, capric, and lauric acid in an oil–water base ('emulgide'), compared favourably with those given by the best of the older compounds. In the course of prolonged contact with sulphanilanide and fatty acids the pathogen gradually acquired a very marked specific resistance to these substances.

1527. Perkin (H. A.). **Fungicides in medicine and pharmacy.**—*Pharm. J.*, 162, 4469, pp. 471–472, 1949.

This is a survey of up-to-date developments in the fungicidal therapy of the dermatomycoses with preparations containing phenols or fatty acids, some formulae of which are given, together with brief details of a combination of *in vitro*, clinical, and laboratory tests devised by the Council on Pharmacy and Chemistry of the American Medical Association in 1945 for the assay of such compounds.

1528. Mülhens (K.). **Die Bedeutung der chemischen Desinfizienten in der Therapie der Dermatomykosen.** [The importance of chemical disinfectants in the therapy of the dermatomycoses.]—*Z. Haut-u. GeschlKrankh.*, 6, 9, pp. 406–415, 1949.

The use of hexylresorcinol (5 per cent. solution in glycerine), known commercially as 'hexyllin', was found to be indicated for the therapy of practically every form of bacterial and mycotic skin disease encountered at a Hamburg general hospital [No. 1292, cf. *R.A.M.*, 12, p. 509]. Nine formulae containing the compound are given.

1529. Pätiälä (R.). **Sur tinea pedis et les matierès antihistamines dans le traitement des dermatophytides.** [On tinea pedis and antihistaminic substances in the treatment of dermatophytids.]—*Ann. Med. exp. Biol. Fenn.*, 27, 2, pp. 145–150, 1949.

Details are given of ten cases of ringworm of the feet caused by *Ctenomyces* [*Trichophyton*] *interdigitale* in which beneficial results were secured by the oral administration of antistine or benadryl capsules in addition to local therapy with salicylated vaseline. The fungus is very prevalent in Finland, having been observed in 49 out of 63 cases (77·8 per cent.) in the writer's practice during the second half of 1947 [cf. No. 1261].

1530. Combes (F. C.), Zuckerman (Ruth), & Bobroff (A.). **Copper undecylenate in the treatment of dermatomycoses.**—*J. invest. Derm.*, 10, 6, pp. 447–452, 1948.

The authors review the background during the past two decades for the therapy of cutaneous dermatomycoses and present the results of treatment of tinea capitis (caused principally by *Microsporum audouini*), tinea corporis, and dermatophytosis with copper undecylenate combined with a wetting agent and dissolved in a fat-solvent base. Most of the patients benefited by the treatment, which is considered to merit further trials.

1531. Price (H.). **The local treatment of tinea capitis due to Microsporum audouini.**—*Ann. west. Med. Surg.*, 3, 6, pp. 210–216, 1949.

The results of treatment of tinea capitis (*Microsporum audouini*) during an eight-month period at the Southeast Tinea Capitis Clinic, Los Angeles, California, are presented. Of 39 co-operative patients 18 (46 per cent.) were cured in an average period of 5·4 months, compared with four (14·6 per cent.) out of 29 receiving inadequate treatment or none. Local therapy with salicylanilide ointment is beneficial to most patients, while those with only a few infected hairs respond rapidly to manual epilation supplemented by the application of ointment and shampoos. The same treatment, provided dissemination is absent, is effective in the case of single small patches of ringworm. Parenteral administration of penicillin is advisable in widespread inflammation or kerion which interferes with the topical application of a fungicide. Manual epilation, an essential part of local treatment, is useless if the fluorescent hairs are fastened securely to the follicles and break off during extraction. In such cases it may be necessary to await the loosening of the hairs, which generally occurs after a few months of treatment.

1532. Wilson (J. F.). **Manual epilation in treatment of tinea capitis.**—*Arch. Derm. Syph., Chicago*, 60, 3, pp. 347–355, 1949.

Three groups of patients with tinea capitis (*Microsporum audouini*) were treated at Philadelphia. Of the 39 in the first (control) group, treated exclusively with an ointment consisting of 5 per cent. undecylenic acid, 3 per cent. triethanolamine, 20 per cent. zinc undecylenate, 3 per cent. sodium tetradecyl sulphate, 10 per cent. propylene glycol, 10 per cent. propylene alcohol, and 49 per cent. carbowax 1500, 11 (22·8 per cent.) were cured. Of the 17 in the second group, given one minute's manual epilation fortnightly in addition to the ointment, 6 (35·2 per cent.) were cured. Of the 32 in the third group, given five minutes' epilation fortnightly besides the ointment, 18 (56·2 per cent.) were cured. In the first group the time required for cure in nine cases averaged 193·4 days, the corresponding figures for all the cures in the second and third groups being 171·5 and 185·5 days, respectively.

1533. Lydon (F. L.), Stephanides (T.), & Robb (T. M.). **Ringworm of the scalp. Treatment by X-ray epilation without subsequent local application.**—*Brit. med. J., 1949*, 4603, pp. 523–524, 1949.

After an interval of eight months to two years 90 cases of tinea capitis (68 with a laboratory diagnosis of *Microsporum audouini*) out of a total of 103 treated solely by X-ray epilation were re-examined and found to show no signs of relapse. Local fungicidal applications would therefore seem to be superfluous in cases of this type.

1534. Shellow (H.). **Ringworm of the scalp.**—*Arch. Derm. Syph., Chicago*, 59, 5, p. 591, 1949.

Skullcaps [worn by infected children to prevent them from infecting others] do not afford adequate protection from ringworm infection when made from the tops of nylon hose and cotton, rayon, linen, or other closely woven material should be substituted for this purpose.

1535. Lurie (H. I.) & Brookfield (E.). **Copper-impregnated concrete floors: their value in preventing the spread of athlete's foot.**—*S. Afr. med. J.*, 22, 15, pp. 487–490, 1948. [*B.H.*, 23, 956].

Copper-containing concrete was of very little value as a fungicide, bactericide, or preventive of the spread of foot infections.

1536. Mitchell-Heggs (G. B.). **The treatment of 'athlete's foot'.**—*Practitioner*, 163, 974, pp. 123–129, 1949.

Directions are given for the diagnosis of 'athlete's foot' [tinea pedis] and its treatment by hygienic measures and the application of fungicides, a number of suitable formulae being given.

1537. Traub (E. F.) & Schultheis (D.). **Gassing of fungi: a preliminary report.**—*Arch. Derm. Syph., Chicago*, 60, 2, pp. 272–276, 1 diag., 1949.

The exposure of cultures of *Microsporum audouini*, *M. lanosum* [*M. canis*], *Trichophyton purpureum* [*T. rubrum*], and *T. gypseum* [*T. mentagrophytes*] on Sabouraud's dextrose agar to chlorine for 30 minutes appeared to kill the mycelia and spores, since neither the gassed cultures themselves nor subcultures taken from them showed signs of life after a four weeks' observation period. Chlorine is easily controlled and relatively non-irritating to the skin.

1538. Oster (K. A.) & Golden (M. J.). **Studies on alcohol soluble fungistatic and fungicidal compounds. IV. Treatment of dermatophytosis pedis with 8-hydroxyquinoline.**—*Exp. Med. Surg., N.Y.*, 7, 1, pp. 37–45, 3 figs., 1949.

At Bridgeport, Connecticut, 40 cases of dermatophytosis pedis (nine yielding

Trichophyton gypseum [*T. mentagrophytes*], two *Epidermophyton floccosum*, and one *Candida albicans* in pure culture) were treated with an alcoholic solution of 2·5 per cent. 8-hydroxyquinoline. The clinical results appeared to be at least equal in the mild (18) and moderate (12) cases and superior in the severe (10) to those obtained with other fungicidal preparations.

1539. Serri (F.). **Pouvoir antifongique de la polymyxine (aérosporine) sur huit souches de Dermatomycètes.** [Anti-fungal potency of polymyxin (aerosporin) in relation to eight strains of Dermatomycetes.]—*C.R. Soc. Biol., Paris*, 143, 5–6, pp. 362–364, 1949.

Aerosporin, an antibiotic secreted by *Bacillus aerosporus* and alleged to be identical with polymyxin from *B. polymyxa* (*Rev. Immunol.*, in the press), was shown to exert a fungistatic action at low concentrations on eight dermatophytes, namely, *Microsporum felineum* [*M. canis*], *Achorion* [*Trichophyton*] *schoenleini*, *T. gypseum asteroides* [*T. mentagrophytes*], *T. rubrum*, *T. crateriforme* [*T. tonsurans*], *M. audouini*, *A.* [*T.*] *quinckeanum*, and *Sporotrichum* [*Oospora*] *gougeroti* [No. 1547], of which the two first-named were the most sensitive.

1540. Peck (S. M.) & Li (K. K.). **Factors in amorphous penicillin G influencing growth of fungi. I. Effect of elaboration of trichophytin by Trichophyton gypseum.**—*Arch. Derm. Syph., Chicago*, 55, 5, pp. 498–505, 1 fig., 6 graphs, 1949.

Certain lots of amorphous penicillin G apparently contain factors which suppress the growth of *Trichophyton gypseum* [*T. mentagrophytes*] in Sabouraud's bouillon, the resultant retardation being reflected in the decreased formation of trichophytin in the medium. No comparable effect is exerted by crystalline penicillin G as now commercially available.

1541. Schwartz (L.), Robinson (M.), & Gant (J. Q.). **A new treatment for superficial mycoses.**—*Industr. Med.*, 18, 6, pp. 257–258, 1949.

Of 50 successive cases of superficial mycoses treated at Washington, D.C., by the topical application of a solution of 5 per cent. salicylanilide (sterilan extra) and 1 per cent. trimethyl octadecyl ammonium pentachlorophenate (hyamine 3258) in 94 per cent. isopropyl alcohol, 43 were clinically cured and seven improved. Of 38 cases of tinea pedis, 36 were clinically cured in an average time of less than three weeks and the other two greatly benefited. Clinical cures of four out of five cases of tinea cruris were effected in an average time of 12 days. The treatment alleviated the symptoms of onychomycosis in four patients, but did not cure the condition in periods of one to four months.

1542. Adamson (J. B.) & Gillies Annan (W.). **Epidermophytosis. Preventive measures at pit-head baths.**—*Brit. J. phys. Med.*, N.S., 12, 1, pp. 34–37, 1949.

Of 555 men examined for foot trouble at a north of England colliery, 53 per cent. presented evidence considered sufficient to warrant a diagnosis of epidermophytosis. A fungus, subsequently identified as *Trichophyton gypseum* [*T. mentagrophytes*], was demonstrated in scrapings from six out of 20 cases. Prophylactic measures should include the daily treatment of all suspected cases with acro-ped ointment (an odourless preparation of high potency and low toxicity containing 0·05 per cent. phenylmercuric nitrate), while phenylmercuric lactate foot baths are to be recommended if available.

1543. Hall (H. T. B.). **Ringworm of Horses in Fiji.**—*Agric. J. Fiji*, 18, pp. 11–18, 1947. [*V.B.*, 19, No. 1480.]

Ringworm of cattle and horses assumed serious proportions in Fiji in 1944 and was still prevalent in 1945–6. Legislation was introduced to control the movement of stock and fittings in certain areas and to order organized musters and treatment. A lime-sulphur and later a coco-nut oil and 'dieselene' mixture were generally used as treatment.

1544. Mackinnon (J. E.). **Resumen sobre 46 observaciones de esporotricosis realizadas en el Uruguay.** [Summary of 46 observations on sporotrichosis made in Uruguay.]—*An. Inst. Hig. Montevideo*, 2, 1, pp. 44–49, 1949.

Sporotrichosis (*Sporotrichum* sp.), though not a rare disease in Uruguay, is not so widespread as to constitute a hygienic problem. Most of the 46 patients examined by the author were adult males, farmers and manual labourers, and there was only one woman in the series.

1545. Mackinnon (J. E.). **Las condiciones meteorológicas causa determinante de la frecuencia de la esporotricosis.** [Meteorological conditions the determining cause of the frequency of sporotrichosis.]—*An. Inst. biol. Montevideo*, 2, 1, pp. 50–66, 10 graphs, 1949. [English summary.]

In 32 out of the 46 cases of sporotrichosis (*Sporotrichum* sp.) investigated by the author in Uruguay between 1939 and 1948 [see preceding entry] it was possible to ascertain the date of infection. Twenty-six of the patients contracted the disease during the autumn and early winter (April to July, inclusive). Small epidemics occurred between 21st May and 8th June, 1944, and during the first week of April, 1947, associated in both years with high relative humidity and heavy precipitation, the temperature in the former period ranging 16° to 20° C. and in the latter from 17° to 19°. These conditions would promote the growth of the pathogen on its natural medium and the risk of its transmission to man is correspondingly enhanced. The Uruguayan observations are in agreement with those of workers on the disease in South Africa [*R.A.M.*, 20, p. 302; Nos. 1273, 1277].

1546. Robinson (H. M.). **Industrial sporotrichosis.**—*Sth. med. J.*, 42, 4, pp. 343–345, 1949.

Within a period of six months the author investigated three cases of sporotrichosis (*Sporotrichum schencki*), all males, 44 (a negro), 24, and 25 years old, with a history of exposure to possible industrial sources of infection, at Baltimore, Maryland, where no previous observations appear to have been made on the disease during the past 25 years.

1547. Janke (D.). **Zur systematischen Einordnung des Sporotrichon gougeroti. Eine vergleichende mykologische, tierexperimentelle und serologische Studie.** [On the systematic position of *Sporotrichum gougeroti*. A comparative mycological, animal-experimental, and serological study.]—*Arch. Derm. Syph., Berl.*, 187, 5–6, pp. 686–710, 25 figs., 1 diag., 1949.

Following a general introduction to the historical, botanical, and clinical aspects of sporotrichosis, two cases of the disease are reported from Münster, Westphalia, one in a ten-year-old girl and the other in a 27-year-old railwayman, the former being referred to *Sporotrichum gougeroti* and the latter to *S. beurmanni* [*S. schencki*]. Comparative mycological studies, animal experiments, and serological observations led to the following conclusions as to the identity of *S. gougeroti*. The position of the fungus within the genus *Sporotrichum* is ambiguous. Its attribution to the pure yeasts is rejected on mycological grounds, and hence Saccardo's name of *Torula gougeroti* becomes inapposite.

The fungus should be relegated to the Oosporeae (yeast-like fungi) under the name of *Oospora gougeroti* [No. 1274].

Mice and guinea-pigs were successfully inoculated with both fungi. For the first time the causal organisms could be reliably identified in human tissue by means of fluorescence–microscopic studies, using a special technique devised by G. Gohde (Bad Salzuflen) for the application of chromium (coriphosphin) to tissue sections.

1548. Cawley (E. P.). **Sporotrichosis, a protean disease : with report of a disseminated subcutaneous gummatous case of the disease.**—*Ann. intern. Med.*, 30, 6, pp. 1287–1294, 6 figs., 1949.

Sporotrichosis (*Sporotrichum schencki*) is a disease that may occasionally be encountered by physicians in every branch of medicine, and since 1932, when less than 200 cases (many unauthenticated) had been recorded in the United States, the proved incidence of infection has risen with great rapidity. All *S.* spp. are common saprophytes, usually on vegetable material but also at times on humans and animals. Manifestations of the disease are polymorphous, a feature of frequent diagnostic import, especially as regards skin lesions. Although sporotrichosis is usually divided into the cutaneous and systemic types, it is noteworthy that in a preponderance of all cases the integument is involved to a variable degree, and that demonstrable visceral lesions are most unusual. Of all the deep mycoses, sporotrichosis is the only one for which a specific therapeutic agent exists in the form of potassium iodide. An uncommon case of the disease in a 70-year-old male is reported from the University of Michigan Hospital, Ann Arbor, characterized by multiple, disseminated, subcutaneous, gummatous, and osseous lesions (the last-named probably secondary).

1549. Salvin (S. B.). **Multiple budding in Sporotrichum schencki Matruchot.**—*J. invest. Derm.*, 9, 6, pp. 315–320, 18 figs., 1947.

The budding or tissue phase of *Sporotrichum schencki* was grown in the liquid 'YP' medium originally devised for the culture of the yeast-like phase of *Histoplasma capsulatum* [No. 937]. In addition to the formation of single buds, two types of multiple budding were observed, in one of which one to four buds were borne at one or both of the cell extremities, while in the other they developed at any point on the cell surface. Optimum conditions for the production of a maximum quantity of budding cells and a minimum of mycelium included a temperature of about 37° C.; a proportion of 0·15 to 0·2 per cent. agar in the medium, which should be slightly alkaline (pH 8·2); an increase of carbon dioxide tension to between 60 and 80 per cent.; and moderation in the protein and carbohydrate supply.

1550. Janke (D.). **Zur Klinik und Mykologie der Cephalosporiose. Ein Beitrag zur Kenntnis seltener Mykosen.** [On the clinical features and mycology of cephalosporiosis. A contribution to the knowledge of rare mycoses.]—*Arch. Derm. Syph., Berl.*, 188, 3, pp. 357–373, 11 figs., 1949.

A case of subcutaneous, ulcerating nodules, persisting for two years, on the legs of a 27-year-old female patient at the Dermatological Clinic, Ascheberg, Westphalia, was found to be due to *Cephalosporium acremonium*. The fungus was isolated from the nodules and blood stream and proved to be pathogenic to rats and mice. The colonies change from grey-white to reddish-hazelnut-brown after 10 minutes' exposure to ultra-violet rays. A critical survey is given of the 19 cases of cephalosporiosis reported to date in the relevant literature, of which the present is the fifth for Germany [No. 1294].

1551. Leon (L. A.). **Diagnóstico microscópico de las enfermedades tropicales de América.** [Microscopical diagnosis of tropical diseases in America.]—*Univ. centr. Publ. Fac. Cienc. med.*, Quito, Ecuador, 2, 108 pp., 26 figs., 1947. [*T.D.B.*, **46**; 177.]

One section of this work is devoted to fungal diseases, including, among others, coccidioidomycosis [*Coccidioides immitis*], blastomycosis [? *Paracoccidioides brasiliensis*], mycetoma, and sporotrichosis [*Sporotrichum schencki*]. Each disease is treated under the headings of causal agent, material to be taken for examination, staining methods, what can be seen microscopically, sources of possible error, and confirmation of diagnosis.

1552. Skinner (C. E.). **The yeast-like fungi : Candida and Brettanomyces.**—*Bact. Rev.*, **11**, 4, pp. 227–274, 1947. [*B.H.*, **24**, 167.]

All but a few pages of this review of the yeast-like fungi characterized by pseudomycelium and absence of ascospores are devoted to the genus *Candida*, dealt with in five sections: old and recent classifications, morphology and variation, physiology, taxonomy, ecology, moniliasis, and immunological reactions. The bibliography comprises over 300 references.

1553. Mackinnon (J. E.). **Zimologia médica. Morfologia, fisiologia, variaciones hereditarias y ambientales, acción patógena experimental, métodos de estudio y de identificación de las levaduras de interés médico.** [Medical zymology. Morphology, physiology, hereditary and environmental variations, experimental pathogenic action, and methods of study and identification of yeasts of medical interest.]—160 pp., 19 pl., 1 fig., Montevideo, Imprenta 'El Siglo Illustrado' 1946. [English summary.] [*B.H.*, **24**, 244.]

In this useful monograph the author gives a detailed, fully documented account of his studies on the identification of yeasts of medical importance. Thrush and 'erosio interdigitalis blastomycetica' appear to be caused by *Candida albicans* which, with *C. tropicalis*, also causes bronchomoniliasis and paronychia, while *C. parakrusei* is another common parasite of mucous membranes. *C. krusei* and *C. chalmersii* are saprophytes outside the human body, often contaminating cultures of *C. albicans* and *C. tropicalis*.

INDEX OF AUTHORS

	No. of Abstract
Absher, W. K.	1418
Adamson, H. G.	1463
Adamson, J. B.	1542
Alkiewicz, J.	1449
Allen, R.	1422
Altweg, J.	1484
Amlie, R.	1436
Anderson, W. A. D.	1295
Andy, O. J.	1374
Ansell, H. B.	1475
Appel, B.	1475
Arbesman, C. E.	1332
Argabrite, J. W.	1338
Armstrong, J. W.	1409
Artagaveytia-Allende, R. C.	1291, 1347, 1348
Ashley, P.	1327
Baer, R. L.	1479
Baggenstoss, A.	1319
Baker, C. G.	1462
Baldacci, E.	1309
Barail, L. C.	1518
Bass, H. E.	1373, 1381
Baugher, L.	1319
Beadenkopf, W. G.	1384
Beard, R. R.	1415
Beerman, H.	1514
Behling, R. T.	1471
Bell, M.	1520
Benedek, T.	1355
Benham, R. W.	1491
Benson, E. S.	1386
Berke, R.	1373, 1381
Bieberdorf, F. W.	1338
Biguet, J.	1294
Birsner, J. W.	1388, 1390
Boand, A.	1315
Bobroff, A.	1530
Bocobo, F. C.	1491, 1496
Bowyer, H. W.	1307
Boyd, L. J.	1520
Bradford, B.	1298
Brain, R. T.	1511
Brandstaetter, S.	1365
Bras, G.	1394
Briney, A. K.	1382
Briz de Negroni, C.	1379, 1380
Brookfield, E.	1325, 1535
Brown, E. A.	1332
Brown, R.	1525
Bumgarner, F. E.	1464, 1465
Burke, R. C.	1464, 1465
Bushby, S. R. M.	1524
Cáceres, M.	1385
Čajkovac, Š.	1459
Campbell, C. C.	1285, 1412, 1413, 1414
Campbell, D. A.	1298
Cancela Freijo, J.	1405
Caplin, S. M.	1500
Carlson, A. S.	1362
Carney, R. G.	1474
Carrasco, M. C.	1488
Carrick, L.	1509
Casanovas, M.	1521, 1522, 1523
Castillo, C. G.	1358
Cawley, E. P.	1397, 1457, 1461, 1476, 1548
Cazzola, D.	1432
Cline, F.	1418
Cochet, G.	1294
Cohen, R.	1389
Collins, L. H.	1411
Colonnello, F.	1431
Combes, F. C.	1530
Cope, V. Z.	1310, 1311
Corrigan, K. E.	1290
Costa, L. P.	1396
Cotte, J.	1508
Coudert, J.	1508
Coutelen, F.	1294
Craps	1519
Curry, J.	1497
Curtis, A. C.	1397
Curtis, G. D.	1301
Cury, A.	1329
Cuttino, J. T.	1321
Daglio, C. A. N.	1379, 1446
Daniel, P. M.	1361
Danisset, M.	1402
Danowski, T. S.	1363
Da Silva Lacaz, C.	1306, 1349, 1369
De Almeida, F. P.	1306
De Arêa Leão, A. E.	1329
Delameter, E. D.	1345, 1346
De Oliveira, E.	1369
De Stefano, A.	1308
Di Menna, M. E.	1460
Di Pietro, A.	1396
Djoa Liang Ham	1394
Dobes, W. L.	1477
Doherty, D.	1516
Drouhet, E.	1366
Duemling, W. W.	1387
Dutton, L. O.	1330
Edwards, L. B.	1420
Eichbaum, F. W.	1292
Elena, J. P.	1503
Elson, W. O.	1293
Emmons, C. W.	1287, 1425, 1427, 1428, 1492
Engelhard, C. F.	1435
Ennever, J.	1299
Ephraim, H.	1437
Esquivel Medina, E.	1385
Evans, A. N.	1374
Evans, E. E.	1364
Everett, H. H.	1295
Fainer, E. M.	1469
Fainsinger, M. H.	1305
Fanconi, G.	1304
Felsher, M.	1502
Figley, E. D.	1333

	No. of Abstract
Finlay, C. C.	1313
Finnegan, J. V.	1408
Firestone, G. M.	1386
Foley, G. E.	1443
Forattini, O. P.	1306
Frappier, M.	1403
Furcolow, M. L.	1416, 1426
Gant, J. Q.	1541
García Valdecasas, F.	1521, 1522
García-Zorrón, N.	1348
Garvan, J.	1313
Gaté, J.	1508
Gerstl, B.	1324
Ghosh, L. M.	1489
Giardini, A.	1451
Gilbert, R. O.	1466
Gillies Annan, W.	1542
Ginsberg, A.	1320
Glicklich, E. A.	1473
Goddard, J. C.	1420
Golden, M. J.	1538
González Ochoa, A.	1385
Gorlenko, M. V.	1328
Gottlieb, O.	1300
Götz, H.	1450
Grant, J. L.	1411
Grekin, R. H.	1457
Grixoni, F.	1495
Guy, R.	1402, 1403
Haber, H.	1511
Hadgraft, J. W.	1511
Hadida, E.	1481
Hager, H. F.	1318
Hales, A. B.	1363
Hall, H. T. B.	1543
Halpern, L. K.	1339
Hamilton, D. M.	1362
Hammer, J. M.	1290
Härö, S.	1455, 1456
Hausman, R.	1429
Hayden, H. S.	1290
Hazen, E. L.	1525
Hehre, E. J.	1362
Heilman, F. R.	1352
Heinemann, B.	1513
Heinlein, J. A.	1467
Heise, E. R.	1335, 1336
Heise, H. A.	1335, 1336
Hellier, E.	1501
Hiatt, W. O.	1434
Hill, E. L.	1427
Hill, H. A.	1504
Hirsch, E. F.	1317
Hoffmann, E.	1322
Hollaender, A.	1492
Holtzwart, F.	1282
Horáček, J.	1515
Horne, S. F.	1461
Houck, G. H.	1392
Huber, W. M.	1500
Hunter, W. R.	1312
Huppert, M.	1490
Hyde, B.	1383
Hyde, L.	1383
Janke, D.	1547, 1550
Jelliffe, D. B.	1400
Jillson, O. F.	1490
Kagen, M. S.	1284
Kämpe, Å.	1323
Kaplan, S.	1368
Kapros, C. E.	1358
Karpluk, F. E.	1467
Kazlowski, J. P.	1308
Kessel, J. F.	1282, 1434
Kitchin, P. C.	1299
Kligman, A. M.	1359
Klotz, M. O.	1342
Kocková-Kratochvílová, A.	1442
Köhler, B.	1296
Koller, M.	1309
Kotter, G. F.	1394
Kressmann-Debus, E.	1438
Kuhn, L. R.	1360
Kuzma, J. F.	1406, 1407
Labarge, O. J.	1374
Lacaz, C. da S.	1306, 1349, 1369
Lack, H.	1384
Ladany, E.	1343
Langeron, M.	1430
Laskaris, T.	1301, 1494
Leão, A. T.	1292
Lederer, H.	1433
Leon, L. A.	1551
Levine, S.	1340
Levitus, Z. A.	1365
Li, K. K.	1540
Little, A. C. W.	1320
Littman, M. L.	1288
Lo Cascio, A.	1520
Loewenthal, K.	1468
London, I. D.	1512
Loosli, C. G.	1384
López-Fernández, J. R.	1480
Love, S. V.	1398
Lurie, H. I.	1325, 1395, 1535
Luteraan, P. J.	1430
Lydon, F. L.	1533
Mackinnon, J. E.	1291, 1350, 1351, 1375, 1544, 1545, 1553
Malgras, J.	1485
Mantz, H. L.	1393
Manwaring, J. H.	1354
Marill, F. G.	1481
Markel, I. J.	1471
Marples, M. J.	1460
Massoud, G. El D.	1447
Mazzini, M. A.	1503
McCabe, A. M.	1321
McGavack, T. H.	1520
McLaren, J. A.	1356
McQuown, A. D.	1288
Memmesheimer, A. M.	1458

	No. of Abstract
Meyer, E.	1284
Meyer, J.	1485
Migliaccio, A. V.	1318
Miller, C. R.	1293
Miller, D.	1388
Mitchell-Heggs, G. B.	1536
Montemayor, L.	1351, 1372
Montgomery, R. M.	1467
Moore, M.	1295, 1326, 1339, 1371
Moreau, M. H.	1344
Morère, P.	1481
Morgan, D. B.	1470
Moriamé, G.	1453, 1454, 1507
Morlan, H. B.	1427
Morrow, M. B.	1331, 1332
Mosconi, G.	1432
Mottram, M. E.	1504
Mülhens, K.	1528
Mundt, L. K.	1371
Muñoz, I. D.	1314
Murphy, J. C.	1506
Muskatblit, E.	1479, 1499
Negroni, P.	1370, 1376, 1377, 1378, 1379, 1380, 1446
Neill, J. M.	1358
Newcomb, A. L.	1367
Newton, A.	1337
Nielsen, C. S.	1367
Nikolowski, W.	1452
Niño, F. L.	1396
Norden, A.	1424
Novak, M.	1315, 1340
O'Neill, F. J.	1367
Oosthuizen, S. F.	1305
Oster, K. A.	1538
Palmer, C. E.	1420
Panisset, M.	1403
Pates, A. L.	1429
Pätiälä, R.	1493, 1529
Pearson, I. A.	1290
Peck, S. M.	1510, 1540
Pemberton, H. S.	1312
Perkin, H. A.	1527
Petit, P. T.	1332
Plunkett, O. A.	1286
Poix, G.	1302
Polster, M.	1515
Potier, E.	1444
Poupart, G.	1402
Price, H.	1469, 1531
Prince, H. E.	1332
Pryor, H. B.	1399
Puig Muset, P.	1521, 1522
Radice, J. C.	1368, 1370
Ramirez, S.	1391
Rand, R. W.	1297
Raubitschek, F.	1498
Rawling, F. F. A.	1333
Rawson, A. J.	1410, 1411
Reif, F. B.	1472
Reiss, F.	1441, 1516
Rice, F. A.	1384
Rijkebüsch, L.	1394
Riley, K. A.	1440
Robb, T. M.	1533
Robbins, S. J.	1478
Robertson, R. F.	1439
Robinson, H. B. G.	1299
Robinson, H. M.	1546
Robinson, M.	1541
Rockwood, E. M.	1473
Rosenberger, H. G.	1415
Ross, B. D.	1419
Rothman, S.	1506
Roy, O.	1402
Ruhe, J. S.	1426
Sagher, F.	1482, 1498
Saito, M. T.	1415
Salvin, S. B.	1289, 1353, 1423, 1549
Sartory, A.	1444, 1484, 1485
Sartory, R.	1484, 1485
Saslaw, S.	1285, 1412, 1413, 1414
Schain, P.	1308
Scherago, M.	1337
Schiller, F.	1361
Schneidau, J. D.	1288
Schneider, R. C.	1297
Schomer, A.	1373, 1381
Schultheis, D.	1537
Schuster, M.	1406
Schwartz, L.	1541
Segretain, G.	1366
Sellers, E. D.	1332
Serri, F.	1451, 1517, 1539
Shellow, H.	1534
Sing, T. B.	1526
Singer, E.	1357
Skinner, C. E.	1552
Slattery, R. V.	1384
Slaughter, J. C.	1476
Smale, L. E.	1390
Smith, C. E.	1415
Smith, D. T.	1283
Smith, R. H.	1358
Snow, J. S.	1512
Sperber, P. A.	1505
Spicer, C.	1434
Starrs, R. A.	1342
Stephanides, T.	1533
Stewart, C. B.	1401
Stewart, S. M.	1524
Stigter, W.	1448
Swan, L. L.	1408
Swartz, J. H.	1473
Szczepaniak, L. W.	1324
Tager, M.	1324, 1363
Tassinari, G.	1404
Taylor, A. B.	1382
Tenberg, J. A. G.	1303
Thiers, H. D.	1331
Thjötta, T.	1436

	No. of Abstract
Todd, R. McL.	1433
Torrens, J. A.	1316
Tovar, R. M.	1391
Traub, E. F.	1537
Tucker, F. C.	1317
Vanbreuseghem, R.	1445, 1453, 1454, 1483, 1486, 1487
Verhagen, B. A.	1526
Vilanova, Y.	1521, 1522, 1523
Vinelli, H.	1350, 1351
Vivoli, D.	1378
Vollum, R. L.	1361
Walther, H.	1452
Walton, C. H. A.	1334
Weaver, R. H.	1337
Weed, L. A.	1319
Weidman, F. D.	1359
Weiner, D.	1520
Weiss, R. S.	1326
Whitaker, H. W.	1341
Whiting, E. G.	1415
Wilson, J. F.	1532
Wilson, J. W. W.	1286
Winter, W. D.	1443
Wood, M. W. W.	1316
Yeaman, A.	1282
Young, R. M.	1318
Zahn, D. W.	1417
Zuckerman, R.	1530

GENERAL INDEX

The numbers refer to the abstracts and not to the pages.

Achorion on man in Algeria, 1481; causing favus, 1481; effect of hexylresorcinol on, 1292.
Acro-ped ointment, use of, against epidermophytosis, 1542. [1337.
Acrospeira macrosporoidea in the air in U.S.A.,
Actinomyces on man, 1301; in Sweden, 1296; U.S.A., 1319; affecting the abdomen, 1296; lung, 1319; neck, 1319; spleen, 1319; bovine form of, 1296; control, 1296, 1319; effect of hexylresorcinol on, 1292.
— *bovis* on man, see *A. israeli*.
— *brasiliensis* on man in Brazil, 1306.
— *israeli* on cattle in Scandinavia, 1323.
— — on man, 1305, 1317; in Brazil, 1306; Chile, 1314; Denmark, 1300; England, 1307, 1316; France, 1302; U.S.A., 1282, 1283, 1284, 1308; affecting the abdomen, 1284; body fluids, 1308; body tissues, 1308; breast, 1284; cervico-facial area, 1284; face, 1300; gluteo-sciatic region, 1314; lung, 1284, 1302; neck, 1300; viscera, 1310; associated with abdominal granuloma brucellosis and xanthoma tuberosum, 1308; control, 1284, 1300, 1307, 1314, 1316; culture of, 1284, 1308; effect of penicillin and streptomycin on, 1315.
— —, technique for isolating, 1299.
— *madurae* on man in Italy, 1309.
— '*scabies*' on man in England, 1312.
Actinomycetes, activation of extracts of, by ultrafiltration, 1525.
Actinomycosis in the dog in Scotland, 1320.
— of man in Brazil, 1306; England, 1311; Holland, 1303; India, 1489; New S. Wales, 1313; S. Africa, 1305; Sweden, 1296; Switzerland, 1304; U.S.A., 1297; (?) *Actinomyces bovis* and *A. brasiliensis* in relation to, 1305, 1306; affecting the abdomen, 1296, 1298, 1311; brain, 1297; chest, 1298; colon, 1311; liver, 1298; lung, 1303, 1304, 1305, 1306; (?) ovary, 1313; rectum, 1311; skin, 1489; viscera, 1310; control, 1296, 1297, 1300, 1303, 1304, 1305; diagnosis of, 1305.
Aerosol A.T., use of, against *Microsporum audouini*, 1471.
Aerosporin, antagonism of, to some dermatomycetes, 1539.
Alcohol, use of, against *Aspergillus nidulans* and *A. niger*, 1325.
Aleurisma on man in France, 1484.
Allergic diseases in U.S.A., 1330, 1331, 1332; in relation to asthma, 1330, 1334; moulds in relation to, 1330, 1331, 1332, 1333.
Alternaria in the air, 1335, 1336.
— on man in Canada, 1334; Finland, 1455; U.S.A., 1333; in relation to allergic diseases, 1333, 1334.
—, technique for preparing extracts of, 1338.
— *tenuis* in relation to allergic diseases, 1332.
Alternaria tenuis, toxicity of, to rabbits, 1328.
Antistine, use of, against *Trichophyton interdigitale*, 1529.
Aspergillus on man in Finland, 1455; U.S.A., 1283, 1326; affecting the toe nails, 1326; effect of hexylresorcinol on, 1292; relation of, to allergic diseases, 1334; to bagasse disease, 1324.
—, preparation of extracts of, 1338.
— *candidus*, toxicity of, to rabbits, 1328.
— *fumigatus* can infect the guinea-pig, pigeon, and rabbit, 1329.
— — on birds (*Tanagra violacea*) in Brazil, 1329.
— — on man in U.S.A., 1319, 1465; affecting the lung, 1319; complement fixation test for, 1289.
— *glaucus* on man in the Pacific, associated with otomycosis, 1465.
— *luchuensis* in dust in U.S.A., 1337.
— *nidulans* on man in S. Africa, causing otomycosis, 1325.
— *niger* on man in S. Africa, 1325; U.S.A., 1465; associated with otomycosis, 1325,
— —, toxicity of, to rabbits, 1328. [1465.
— *terreus* on man in U.S.A., 1326.
— *versicolor* on man in Brazil, associated with otomycosis, 1465.
Asthma of man in relation to moulds in U.S.A., 1330, 1334.
Athlete's foot, see Tinea pedis.
Aureomycin, effect of, on *Nocardia asteroides*, 1318.

Bagasse disease of man in U.S.A., 1324; etiology of, 1324.
Benadryl, use of, against *Trichophyton interdigitale*, 1529.
'Benign histoplasmosis' of man in U.S.A., 1417, 1418, 1419.
Benzoestrol, fungistatic properties of, 1513.
Birds, *Aspergillus fumigatus* on, in Brazil, 1329.
Black tongue of man in U.S.A., 1465.
Blastomyces dermatitidis can infect the mouse, 1352.
— — on man in Argentina, 1344; Canada, 1342, 1356; U.S.A., 1282, 1283, 1284, 1339, 1341, 1343, 1352, 1354, 1355; affecting the arm, 1343; foot, 1343, 1344; hands, 1343; lung, 1354; meninges, 1341, 1352; prostrate, 1339; skin, 1352; allergic reactions to antigen of, 1391; complement fixation test for, 1289; control, 1284, 1341, 1343, 1355; effect of fatty acids on, 1340; factors affecting yeast-like phase in, 1353; nuclear cytology of, 1345; possibility of confusion between *Histoplasma capsulatum* and, 1354; reaction between histoplasmin and, 1414; review of literature on, 1342; rough-smooth variation in, 1346; yeast-like phases of, 1421.

Blastomycetin, effect of, on *Paracoccidioides brasiliensis*, 1349.
Blastomycin, comparison between histoplasmin and, 1412.
Blastomycosis of man in Germany, 1438; in India, 1489; affecting the breast, ear, leg, and nails, 1438; the skin, 1489; *Candida* associated with, 1438; distribution of, 1282, 1283.
—, N. American, see *Blastomyces dermatitidis*.
—, S. American, see *Paracoecidioides brasiliensis*.
Boric acid, effect of, on growth of *Candida robusta* and *C. tropicalis*, 1442.

Candida on man in Finland, 1455; Germany, 1438; associated with blastomycosis, 1438; effect of hexylresorcinol on, 1292; relation of, to allergic diseases, 1334; study on the genus, 1552.
— *albicans*, antagonism between Actinomycetes and, 1525.
— — on man, 1553; in England, 1433; Holland, 1435, 1448; India, 1489; Israel, 1437; Italy, 1431; Scotland, 1439; U.S.A., 1282, 1283, 1434, 1440, 1465, 1538; affecting the bladder and bowels, 1435; lung, 1439; mouth, 1437; nails, 1440; skin, 1489; throat, 1440; ureter, urethra, and vulva, 1435; associated with dermatophytoses, 1538; intestinal diseases, 1431; causing mycosis, 1434; onychomycosis, 1440, 1448; thrush, 1433; complement-fixation test for, 1289; control, 1437, 1440, 1505, 1538; culture of, 1434; effect of penicillin on, 1443; of steroid hormones on, 1441; technique for culturing, 1498.
— — var. *stellatoidea*, effect of penicillin on, 1443.
— *chalmersi* on man in Italy, 1431; saprophytic nature of, 1553.
— *guilliermondi* on man in Italy, 1431.
— *krusei* on man in Italy, 1431; saprophytic nature of, 1553.
— *parakrusei* on man, 1553.
— *pseudotropicalis* on man in Italy, 1431.
— *robusta* on man, effect of boric acid on, 1442.
— *triadis* on man in Italy, 1431.
— *tropicalis* on man, 1553; in Italy, 1431; Norway, 1436; affecting the mouth, nails, skin, and tongue, 1436; effect of boric acid on, 1442; occurrence in the intestines, 1431.
— *truncata* on man in the Belgian Congo, 1445.
Carbon tetrachloride, use of, against *Microsporum audouini*, 1471.
Carbowax, use of, against *Microsporum audouini*, 1471, 1511, 1532; against *M. canis* and *Trichophyton sulphureum*, 1511.
Cattle ringworm in Fiji, 1543.
Cephalosporium on man in U.S.A., causing mycetoma, 1319.
— *acremonium* on man in France, 1294; Germany, 1550; affecting the leg, 1550.
Chlorine, toxicity of, to fungi, 1537.
Citric acid, use of, against *Microsporum audouini*, *M. canis*, and *Trichophyton sulphureum*, 1511.
Cladosporium herbarum, toxicity of, to rabbits, 1328.
Coccidioides immitis can infect the guinea-pig, 1378.
— — on man in America, 1551; Argentina, 1375, 1376, 1377, 1378, 1379, 1380; Bolivia, 1375; N. America, 1376, 1377; Paraguay, 1375; U.S.A., 1282, 1283, 1373, 1374, 1382, 1383, 1386, 1387, 1388, 1389, 1390, 1392; affecting the ankle, 1383; bone, 1388; foot, 1383; joint, 1383; lung, 1373, 1374, 1383; meninges, 1390; omentum and peritoneum, 1383; allergic reactions to, 1391; associated with tuberculosis, 1383, 1386; coccidioidin sensitivity in relation to, 1349, 1384, 1385, 1391, 1415; complement-fixation test for, 1289; control, 1386; culture of, 1376, 1377, 1383; diagnosis of, 1382; distribution of, 1282, 1283; effect of streptomycin on, 1285; endemiology of, 1379, 1380; pulmonary calcifications in relation to, 1384; similarity between tuberculosis and, 1373, 1374; strains of, 1376, 1377, 1378; study of, by fluorescent microscopy, 1370; transmissibility of, 1381.
Coccidioidin, sensitivity to, in relation to *Coccidioides immitis*, 1349, 1384, 1385, 1391, 1415.
Copper-impregnated concrete floors, their value in preventing athlete's foot, 1535.
— undecylenate, use of, against dermatophytosis, 1530; *Microsporum audouini*, 1471, 1530; tinea corporis, 1530.
Crill, use of, against *Microsporum audouini*, *M. canis*, and *Trichophyton sulphureum*, 1511.
Cryptococcus neoformans on man in China, 1357; England, 1361; France, 1366; Israel, 1365; U.S.A., 1282, 1283, 1284, 1367, 1411, 1434; action of hyaluronidase on capsule of, 1366; affecting the adrenals, 1411; lung, 1284; nervous system, 1357, 1361; antagonism of Actinomycetes to, 1525; chemical relations of, 1363; control, 1284, 1359, 1367; culture of, 1357, 1361, 1366; diagnosis of, 1357; distribution of, 1282, 1283; effect of gentian violet and solu-thiazole on, 1361; of steroid hormones on, 1441; isolation of, from lumbar fluid, 1365; (?) new strain of, 1367; production of crystalline amylose by, 1362; reaction between antisera and capsules of, 1358; serological types of, 1364.
— — on the mouse, 1359; effect of body temperature on, 1360.
Ctenomyces granulosus, see *Trichophyton granulosum*.
Cultures of fungi pathogenic to man, media for, 1288, 1493, 1500, 1549; suitable bottles for, 1286.
'Curamycon', use of, against *Trichophyton mentagrophytes*, 1526.

Curvularia trifolii in relation to allergic diseases of man, 1332.

Dermatomycoses, see Dermatophytoses.
Dermatophytes, culture of, 1493, 1494.
— of man in the Belgian Congo, 1486, 1487; New Zealand, 1460; affecting the digits, 1460; *Epidermophyton floccosum*, *Trichophyton mentagrophytes*, *T. rubrum*, and *T. violaceum* associated with, 1460.
Dermatophytoses of man in China, 1357; Germany, 1322, 1528; control, 1322, 1501, 1526, 1527, 1528, 1530.
Dibromosalicil, fungistatic properties of, 1513.
2,4-dichlorophenoxyacetic acid, effect of, on fungi, 1514.
Diethylstilboestrol, effect of, on fungi, 1441, 1502, 1513.
Dithiocarbamic acid derivatives, effect of, on bacteria and fungi, 1293.
Dog, actinomycosis of the, in Scotland, 1320.

Empyema caused by *Aspergillus fumigatus*, 1319; by *Nocardia asteroides*, 1318.
Epidermophyton on man in Czechoslovakia, 1515; Germany, 1458; affecting the foot, 1515; control, 1292, 1515; histology of, 1458.
— *floccosum* on man in New Zealand, 1460; U.S.A., 1465, 1538; affecting the digits, 1460; control, 1505, 1538.
Epidermophytoses of man, control, 1322.

Fatty acids, fungicidal properties of, 1521, 1526, 1527.
Favus of man in Algeria, 1481; U.S.A., 1473, 1477, 1478; affecting the nails, scalp, and skin, 1473; *Achorion* causing, 1481; *Trichophyton schoenleini* causing, 1477, 1478.
Fungicides, testing of, against pathogenic fungi, 1518.
Fusarium, technique for preparing extracts of, 1338.

Gentian violet, effect of, on *Cryptococcus neoformans*, 1361.
Geotrichum on man in U.S.A., 1283.
Glycerine, use of, against dermatomycoses, 1322.
Guinea-pig, *Aspergillus fumigatus* can infect the, 1329.
—, *Coccidioides immitis* can infect the, 1378.
—, *Histoplasma capsulatum* can infect the, 1422.
—, *Paracoccidioides brasiliensis* can infect the, 1347.
—, *Sporotrichum schencki* can infect the, 1547.

'Hairy tongue' of man in U.S.A., 1301.
Helminthosporium in relation to allergic diseases of man, 1334.
—, technique for preparing extracts of, 1338.
— *interseminatum* in relation to allergic diseases of man, 1332.
Hexylresorcinol, effect of, on fungi, 1292, 1528.
Histoplasma capsulatum in soil in U.S.A., 1428.
— — on animals, 1422, 1425.
Histoplasma capsulatum on cattle, histoplasmin sensitivity in relation to, 1426.
— — on man in Argentina, 1396; Austria, 1397; Indonesia, 1394; the Sudan, 1400; Uruguay, 1405; U.S.A., 1282, 1283, 1392, 1397, 1406, 1407, 1408, 1410, 1411, 1419; acid-fast property of, 1410; affecting the adrenals, 1411; tongue, 1396; available information on, 1398; collodion agglutination test for, 1412, 1413; complement fixation test for, 1289, 1393, 1414; culture of, 1394; current status of, 1399; differentiation of, from tuberculosis, 1393; distribution of, 1282, 1393; effect of streptomycin on, 1285; histoplasmin sensitivity in relation to, 1384, 1385, 1395, 1401, 1402, 1403, 1404, 1409, 1413, 1415, 1416, 1426; lymphoblastoma in relation to, 1397; possibility of confusion between *Blastomyces dermatitidis* and, 1354; pulmonary calcifications in relation to, 1384, 1399, 1409, 1416, 1418, 1419, 1420; pulmonary infiltration in relation to, 1417; yeast-like phases of, 1414, 1421, 1422, 1423.
— — on the mouse, 1427.
— — on the rat in U.S.A., 1427, 1428.
— — on the skunk in U.S.A., 1427.
Histoplasmin sensitivity in relation to *Histoplasma capsulatum*, 1384, 1385, 1395, 1401, 1402, 1403, 1404, 1409, 1412, 1413, 1415, 1416, 1417, 1420, 1424, 1426; to pulmonary calcification, 1416, 1417, 1420.
Hormodendrum in relation to allergic diseases of man in Canada, 1334.
—, technique for preparing extracts of, 1338.
— *cladosporioides* in dust in U.S.A., 1337.
— — in relation to allergic diseases of man, 1332.
— *nigrescens* in the air in U.S.A., 1337.
— *viride* in the air in U.S.A., 1337.
Hormones, effect of, on pathogenic fungi, 1441.
Horse, ringworm of the, in Fiji, 1543.
Hyaluronidase, action of, on capsule of *Cryptococcus neoformans*, 1366.
Hyamine 1622, use of, against *Microsporum audouini*, 1471.
8-hydroxyquinoline, use of, against *Candida albicans*, *Epidermophyton floccosum*, and *Trichophyton mentagrophytes*, 1538.
Hyphomycetes, presence of, in the vagina, 1432.

Iodine, toxicity of, to fungi, 1290; to tinea tonsurans, 1503.

Japanese B encephalitis of man, analogy with torulosis, 1357.

Kerion of man in India, 1489.

Lanoline, use of, against *Microsporum*, 1507.
Laryngitis of man, *Saccharomyces laryngitidis* associated with, 1444.
Legislation against ringworm in cattle and horses in Fiji, 1543.
Lymphoblastoma of man, *Histoplasma capsulatum* in relation to, 1397.

Madura foot, see Mycetoma.
Maduromycosis, see Mycetoma.
Malassezia furfur on man in Germany, 1322; Great Britain, 1463; India, 1489; U.S.A., 1462, 1464, 1465, 1516; affecting the skin, 1322, 1463, 1465, 1489; control, 1322, 1516; technique for staining, 1499; variations in, 1464.
Medical mycology, diagnostic problems in, 1287.
Meningitis, cryptococcal, diagnosis of, 1367.
Methyl green, use of, against *Aspergillus nidulans* and *A. niger*, 1325.
Methylrosaniline, use of, against *Candida albicans*, 1440.
Microsphaera circinata and *M.* (?) *euonymi* in relation to allergic diseases of man, 1331.
Microsporon duboisi on man in the Belgian Congo, 1483.
Microsporum on man in Belgium, 1507; India, 1489; affecting the skin, 1489; associated with ringworm, 1507; control, 1292, 1507.
— *audouini* on man in Great Britain, 1511, 1533; U.S.A., 1466, 1467, 1468, 1469, 1470, 1471, 1472, 1473, 1504, 1509, 1512, 1516, 1520, 1531, 1532; affecting the eyelashes, 1467; hair, 1474, 1531, 1532; scalp, 1466, 1467, 1468, 1469, 1470, 1471, 1472, 1473, 1474, 1501, 1511, 1512, 1533; skin, 1474; antagonism of aerosporin to, 1539; associated with ringworm, 1474, 1501, 1502, 1508; 1511, 1512; tinea capitis, 1466, 1467, 1468, 1469, 1470, 1471, 1472, 1473, 1504, 1509, 1512, 1516, 1530, 1531, 1532; control, 1466, 1470, 1471, 1474, 1501, 1502, 1504, 1508; 1509, 1511, 1512, 1530, 1531, 1532, 1533; culture of, 1466; diagnosis of, 1469; by Wood's lamp, 1466; technique for isolating, 1497; for staining, 1499.
— *canis* on man in Belgium, 1453; Great Britain, 1511; U.S.A., 1466, 1468, 1473, 1474, 1475, 1509, 1512, 1516, 1520; affecting the hair, 1474, 1475; scalp, 1453, 1466, 1473, 1474, 1511, 1512; skin, 1474; associated with ringworm, 1474, 1508, 1511, 1512; associated with tinea capitis, 1466, 1468, 1473, 1509, 1512, 1516, 1520; *Trichophyton tonsurans*, 1453; antagonism of aerosporin to, 1539; control, 1474, 1501, 1505, 1508, 1516, 1520; culture of, 1453, 1466; effect of vitamins on growth of, 1495; pathogenicity of, 1451.
— *fulvum* on man in U.S.A., 1474.
— *gypseum* on man in Finland, 1455, 1456; U.S.A., 1457, 1512; affecting the scrotum, 1457; associated with ringworm, 1512; tinea capitis, 1512; control, 1457, 1512.
— *pseudo-umbonatum* on man in France, 1485.
Moniliasis of man in India, 1489; U.S.A., 1462, 1465; affecting the skin, 1489.
Monotospora brevis in the air and dust in U.S.A., 1337.
Moulds in relation to asthma in U.S.A., 1330.
— in the air and dust in U.S.A., 1337.
Mouse, *Blastomyces dermatitidis* can infect the, 1352.
—, *Cryptococcus neoformans* on the, 1359.
—, *Histoplasma capsulatum* can infect the, 1427.
—, *Sporotrichum schencki* can infect the, 1547.
Mucor in relation to allergic diseases of man, 1334.
— on man in U.S.A., 1283, 1295.
—, toxicity of, to rabbits, 1328.
— *corymbifer* on man, complement fixation tests for, 1289.
— *racemosus* on man in Finland, 1455.
Mycetoma of man in America, 1551; Egypt, 1447; India, 1489; Indonesia, 1429; U.S.A., 1284, 1319; affecting the foot, 1447; associated with Actinomycetes, 1309; *Cephalosporium*, 1319; *Nocardia asteroides*, 1284, 1309; *Phialophora jeanselmei*, 1372.
Mycoses of man in U.S.A., 1541; control, 1541; diagnosis of, 1288, 1496.

Nectaromyces rattus on the rat in Argentina, 1446.
Nigrospora sphaerica in relation to allergic diseases of man, 1332.
Nocardia on man in U.S.A., 1301.
(?)— *asteroides* on the dog in Scotland, 1320.
— — on man in Italy, 1309; U.S.A., 1282, 1283, 1284, 1317, 1318, 1319; affecting the lung, 1318, 1319; associated with mycetoma, 1284, 1309; control, 1318.
— *intracellularis* on man in U.S.A., 1321.
— *minutissima* on man in Germany, 1322; India, 1489; U.S.A., 1462, 1465; affecting the skin, 1322, 1489; control, 1322; technique for staining, 1499.
— *tenuis* on man in U.S.A., 1462.

Oil, whale, use of, against epidermophytosis, 1505.
Oils, essential, action of, on *Trichophyton mentagrophytes*, 1523.
Onychomycosis of man in Holland, 1448; Poland, 1449; U.S.A., 1326, 1440, 1541; attributed to *Aspergillus terreus* and *A.* sp., 1326; *Candida albicans*, 1448; *Trichophyton mentagrophytes* and *T. rubrum*, 1448, 1449; control, 1541.
Oospora antisera, reaction of, with *Cryptococcus neoformans*, 1358.
— *gougeroti* on man in Germany, 1547; toxicity of aerosporin to, 1539.
Otitis, external, of man, control in the tropics, 1327.
Otomycosis of man, in S. Africa, 1325; U.S.A., 1462, 1465; associated with *Aspergillus*, 1325; *A. glaucus*, *A. niger*, and *A. versicolor*, 1465.

Para-aminobenzoic acid, effect of, on dermatophytes, 1495, 1517.
Paracoccidioides brasiliensis on man in America, 1551; Brazil, 1349, 1368, 1369; affecting the ano-rectal region, 1369; control, 1292, 1369; detection of, 1368; differ-

entiation of *Paracoccidioides cerebriformis* from, 1347, 1348; effect of blastomycetin, coccidioidin, and paracoccidioidin on, 1349; morphology of, 1351, 1370; multiple budding form of, in culture, 1350; *P. tenuis* identical with, 1347, 1348.
[*Paracoccidioides*] *cerebriformis* on man, differentiation of *P. brasiliensis* from, 1347, 1348.
— *tenuis* on man identical with *P. brasiliensis*, 1347, 1348.
Paracoccidioidin, effect of, on *Paracoccidioides brasiliensis*, 1349.
Pelargonic acid, induced resistance of *Trichophyton gypseum* to, 1506.
Penicillin, use of, against *Actinomyces israeli*, 1284, 1300, 1307, 1314, 1315; actinomycosis, 1296, 1297, 1298, 1300, 1303, 1319; *Blastomyces dermatitidis*, 1343; *Cryptococcus neoformans*, 1284, 1367; *Microsporum*, 1507; *Nocardia asteroides*, 1318, 1319; ringworm, 1519.
— G, use of, against *Blastomyces dermatitidis*, 1355; *Candida albicans* and its var. *stellatoidea*, 1443; *Trichophyton mentagrophytes*, 1540.
Penicillium in the air in U.S.A., 1337.
— in relation to allergic diseases, 1334.
— on man in Finland, 1455; U.S.A., 1283; effect of hexylresorcinol on, 1292.
—, technique for preparing extracts of, 1338.
— *citrinum*, *P. frequentans*, *P. notatum*, and *P. spinulosum* in the air in U.S.A., 1337.
Petroleum oil, use of, for sterilization of barbers' instruments, 1466.
Phenol derivatives, use of, against dermatophytes, 1515, 1518, 1527.
Phenylmercuric lactate, use of, against epidermophytosis, 1542.
Phialoconidiophora guggenheimia congeneric with *Phialophora compacta*, *P. pedrosoi*, and *P. verrucosa*, 1372.
Phialophora jeanselmei, biological characters of, 1372.
— *pedrosoi* on man in Brazil, 1372; U.S.A., 1371.
— *verrucosa*, biological characters of, 1372; effect of streptomycin on, 1285.
Phoma, technique for preparing extracts of, 1338.
Phosphorus, radio-active, effect of, on fungi, 1290.
Phycomyces in the air in U.S.A., 1337.
'Piedra blanca' of man, see *Trichosporon beigelii*.
Pigeon, *Aspergillus fumigatus* can infect the, 1329.
(?) *Pleospora herbarum* in the air in U.S.A., 1337.
Polymyxin, aerosporin (?) identical with, 1539.
Potassium iodide, use of, against *Actinomyces israeli*, 1284, 1307; *Blastomyces dermatitidis*, 1284; *Coccidioides immitis*, 1386; *Sporotrichum schencki*, 1284, 1548; tinea tonsurans, 1503.
— permanganate, use of, against *Candida albicans*, 1440.
'Pragmatar', use of, against *Trichophyton rubrum*, 1479.
Primulin, use of, for detecting *Paracoccidioides brasiliensis*, 1368, 1370.
Proactinomyces pseudomadurae on man in Italy, 1309.
Promin, use of, against *Blastomyces dermatitidis*, 1341.
Propionic acid, use of, against dermatophytes, 1501.
Propylene alcohol, use of, against *Microsporum audouini*, 1532.
— glycol, use of, against *Microsporum audouini*, 1532.
Puccinia in the air, 1336.
— *dichondrae* and *P. purpurea* in relation to allergic diseases, 1331.
Pyridyl 3-zinc mercaptide, use of, against *Malassezia furfur*, *Microsporum audouini*, *M. canis*, *Trichophyton mentagrophytes*, *T. rubrum*, and *T. violaceum*, 1516.

Rabbit, *Aspergillus* on bagasse affecting the, 1324.
—, — *fumigatus* can infect the, 1329.
—, moulds toxic to the, 1328.
Rat, *Histoplasma capsulatum* on the, in U.S.A., 1427.
—, *Nectaromyces rattus* on the, in Argentina, 1446.
Rhizopus in relation to allergic diseases, 1334.
—, toxicity of hexylresorcinol to, 1292.
— *stolonifer*, toxicity of, to rabbits, 1328.
Ringworm of cattle and horses in Fiji, 1543.
— of man in the Belgian Congo, 1487; India, 1489; cap protection from, 1534.
Roentgen-ray, see X-ray.
Rusts in relation to allergic diseases, 1334.

Sabouraudites duboisi on man in the Belgian Congo, 1483.
Saccharomyces laryngitidis on man in France, 1444.
Saccharomycetes, presence of, in the vagina, 1432.
Salicil, fungistatic properties of, 1513.
Salicylanilide, use of, against *Microsporum audouini*, 1466, 1470, 1471, 1502, 1511, 1531; *M. canis*, 1511; mycoses, 1541; ringworm, 1531; *Trichophyton sulphureum*, 1511.
Salicylated vaseline, use of, against *Trichophyton interdigitale*, 1529.
Salicylic acid, fungistatic properties of, 1513.
Skunk, *Histoplasma capsulatum* on the, in U.S.A., 1427.
Smuts in relation to allergic diseases, 1334.
Sodium propionate, use of, against *Candida albicans*, 1440; *Microsporum audouini*, *M. canis*, and *Trichophyton sulphureum*, 1511.
— tetradecyl sulphate, use of, against *Microsporum audouini*, 1532.
— thiosulphate, use of, against dermatophytes, 1322.
Soil, *Histoplasma capsulatum* in, in U.S.A., 1428.

Soluthiazole, effect of, on *Cryptococcus neoformans*, 1361.
Spergon, use of, against *Microsporum audouini* and *M. canis*, 1520.
Sphacelotheca sorghi in relation to allergic diseases, 1331.
Spondylocladium in relation to allergic diseases, 1332.
—, technique for preparing extracts of, 1338.
Sporotrichum on man in Uruguay, 1544, 1545; effect of hexylresorcinol on, 1292.
— *epigaeum*, effect of para-aminobenzoic acid on, 1517.
— *gougeroti* renamed *Oospora gougeroti*, 1547.
— *schencki* can infect the guinea-pig and the mouse, 1547.
— — on man in America, 1551; Germany, 1547; India, 1489; U.S.A., 1282, 1283, 1284, 1546, 1548; affecting the skin, 1489; control, 1284, 1548; detection of, 1547; effect of streptomycin on, 1285; multiple budding in, 1549; reaction between antisera and capsules of, 1358.
Stachybotrys alternans, toxicity of, to rabbits, 1328.
Streptomycin, effect of, on *Actinomyces*, 1312; *A. israeli*, 1315, 1316; *Blastomyces dermatitidis*, 1341; *Coccidioides immitis*, *Histoplasma capsulatum*, *Phialophora verrucosa*, *Sporotrichum schencki*, and *Trichophyton mentagrophytes*, 1285; *Nocardia asteroides*, 1318.
Streptothrix madurae, see *Actinomyces madurae*.
Sulpha drugs, use of, against actinomycosis, 1296.
Sulphadiazine, use of, against *Actinomyces israeli*, 1284; actinomycosis, 1297, 1303; *Nocardia asteroides*, 1318; *Paracoccidioides brasiliensis*, 1369.
Sulphonamides, use of, against actinomycosis, 1298, 1304; *Cryptococcus*, 1367.

Technique for culturing dermatophytes, 1494, 1497, 1498; for diagnosing epidermophytosis, 1497; fungi, 1282, 1288; mycoses by the potassium hydroxide mount, 1496; for evaluating fungicides, 1510; for identifying *Sporotrichum schencki* and *Oospora gougeroti*, 1547; for irradiating fungal spores with ultra-violet rays, 1492; for preparing mould extracts from cultures, 1338; for staining fungi, 1497, 1499.
Tetracoccosporium in the air in U.S.A., 1337.
Thioglycollate medium for culture of *Actinomyces israeli*, 1284.
Tinea of man in U.S.A., 1462.
— capitis of man in Great Britain, 1533; U.S.A., 1466, 1467, 1468, 1469, 1470, 1471, 1472, 1473, 1502, 1504, 1509, 1516, 1520, 1531, 1532; associated with *Microsporum audouini*, 1466, 1467, 1468, 1469, 1470, 1471, 1472, 1473, 1504, 1509, 1516, 1530, 1531, 1532, 1533; with *M. canis*, 1466, 1468, 1473, 1509, 1516, 1520; control, 1501, 1502, 1504, 1509, 1516, 1530, 1531, 1532, 1533; with *Trichophyton crateriforme*, 1467; with *T. granulosum*, 1509; with *T. schoenleini*, 1473; with *T. sulphureum*, 1467; with *T. violaceum* 1516.
[Tinea] corporis of man in U.S.A., 1516; control, 1516, 1530.
— pedis of man, associated with *Trichophyton mentagrophytes* and *T. rubrum*, 1516; control, 1503, 1535, 1536, 1541.
— tonsurans of man in Argentina, 1503; U.S.A., 1516, 1541; control, 1503.
Trichophytin, 1490.
—, use of, against epidermophytosis, 1505.
Trichophyton on man in Czechoslovakia, 1515; Germany, 1450; effect of hexylresorcinol on, 1292.
— *faviforme* on man in U.S.A., 1474.
— *ferrugineum*, *T. glabrum*, and *T. gourvili* on man in the Belgian Congo, 1487.
— *granulosum* on man in Belgium, 1454; U.S.A., 1509; associated with tinea capitis, 1509.
— *gypseum* on man, artificially induced resistance of, to pelargonic acid, 1506.
— *interdigitale* on man in Finland, 1455, 1529; associated with ringworm, 1529; control, 1505, 1529.
— *mentagrophytes* on man in Czechoslovakia, 1515; Germany, 1452; England, 1542; Holland, 1448; India, 1489; New Zealand, 1460; Poland, 1449; U.S.A., 1461, 1465, 1474, 1516, 1538; action of some essential oils on, 1523; of various compounds on, 1524; affecting the digits, 1460; foot, 1515, 1542; hair, 1474; scalp, 1474; skin, 1474, 1489, 1461; antagonism between Actinomycetes and, 1525; of aerosporin to, 1539; associated with dermatophytosis, 1538; epidermophytosis, 1542; ringworm, 1474, 1489; tinea pedis, 1516; trichophytosis, 1452; causing onychomycosis, 1448, 1449; concurrence of, with *T. violaceum*, 1461; control, 1474, 1505, 1515, 1516, 1522, 1538; effect of para-aminobenzoic acid on, 1517; of penicillin G on, 1540; of fatty acids from human hair on, 1521; of streptomycin on, 1285; of vitamins on, 1495; induced mutation and speciation in, 1492; pathogenicity of, 1451; pigment production in the differentiation of *T. rubrum* and, 1491; technique for culturing, 1498; for irradiating spores of, 1492; for isolating, 1497; use of, for testing fungistatic action of some fatty acids, 1526.
— *purpureum* on man in Israel, 1482.
— *quinckeanum* on man, antagonism of aerosporin to, 1539; control, 1505.
— *rodhaini* on man, affecting the pubic region, 1486; culture of, 1486.
— *rosaceum*, effect of para-aminobenzoic acid on growth of, 1517.
— *rubrum*, antagonism between Actinomycetes and, 1525.
— — on man, 1490; in Europe, 1459; Holland, 1448; New Zealand, 1460; U.S.A., 1465, 1474, 1479, 1516; Yugoslavia, 1459; affecting the digits, 1460; hair, 1474; scalp, 1474;

skin, 1474, 1479; antagonism of aerosporin to, 1539; associated with nevoid anomaly, 1479; ringworm, 1474; tinea pedis, 1516; causing dermatomycosis, 1459; onychomycosis, 1448; control, 1474, 1479, 1505, 1516; pathogenicity of, 1459; pigment production in the differentiation of *T. mentagrophytes* and, 1491; technique for culturing, 1498; isolating, 1497; staining, 1499.
[*Trichophyton*] *sabouraudi* on man in Germany, 1452; associated with trichophytosis, 1452; control, 1505.
— *schoenleini* on man, in U.S.A., 1473, 1477, 1478; affecting the scalp, 1473, 1478; antagonism of aerosporin to, 1539; associated with tinea capitis, 1473; causing favus, 1477, 1478; control, 1477, 1505; technique for culturing, 1498; isolating, 1497; staining, 1499.
— *sulphureum* on man in Great Britain, 1511; U.S.A., 1467, 1476; affecting the scalp, 1467, 1511; skin, 1476; associated with ringworm, 1511; tinea capitis, 1467; control, 1476, 1511.
— *tonsurans* on man in Belgium, 1453; U.S.A., 1467; affecting the forehead, 1453; scalp, 1467; antagonism of aerosporin to, 1539; associated with *Microsporum canis*, 1453; tinea capitis, 1467; control, 1505; culture of, 1453; effect of vitamins on growth of, 1495; technique for culturing, 1498.
— *violaceum* on man in Israel, 1482; New Zealand, 1460; Portugal, 1488; U.S.A., 1461, 1516; affecting the digits, 1460; nails, 1461, 1482; scalp, 1488; associated with ringworm, 1488, 1508; tinea capitis, 1516; control, 1505, 1508, 1516; concurrence of, with *T. mentagrophytes*, 1461; technique for culturing, 1498; staining, 1499.
Trichophytosis of man in Germany, 1452; *Trichophyton mentagrophytes* and *T. sabouraudi* associated with, 1452.
Trichosporon beigelii on man in Uruguay, 1480.
Trichothecium roseum, toxicity of, to rabbits, 1328.
Triethanolamine, use of, against *Microsporum audouini*, 1532.
Trimethyl octadecyl ammonium pentachlorophenate, use of, against mycoses, 1541.
Tuberculin, sensitivity to, in relation to pulmonary calcifications, 1384, 1385, 1402, 1403, 1409, 1417, 1418, 1420.
Tuberculosis of man, association of, with *Histoplasma capsulatum*, 1394; *Coccidioides immitis* associated with, 1386; differentiation of, from histoplasmosis, 1393.
Tyrothricin, use of, against ringworm, 1508; *Trichophyton granulosum*, 1454.

Uncinula australiana in relation to allergic diseases of man, 1331.
Undecylenate-undecylenic ointment, use of, against *Microsporum audouini*, 1509.
Undecylenic acid, use of, against dermatophytoses, 1501; *Microsporum audouini*, 1471, 1532; *M. gypseum*, 1457; *Trichophyton mentagrophytes*, 1522.
— compounds, use of, against *Trichophyton sulphureum*, 1476.
Ustilago cynodontis in relation to allergic diseases of man, 1331.

Vitamin A, use of, against *Candida albicans*, 1437.
— D 2, use of, against *Coccidioides immitis*, 1386.

Wood's lamp, use of, in diagnosis of *Microsporum audouini* and *M. canis*, 1466, 1469, 1512; *M. gypseum*, 1512; of tinea capitis, 1501.

Xanthoma tuberosum of man in U.S.A., 1308; *Actinomyces israeli* associated with, 1308.
X-rays, use of, against actinomycosis, 1300; *Blastomyces dermatitidis*, 1284; *Microsporum audouini*, 1466, 1470, 1501, 1502, 1504, 1512, 1533; *M. canis* and *M. gypseum*, 1512, *Trichophyton schoenleini*, 1477.
—, effect of, on fungi, 1290.

Yeast-like fungi, immersion of, in solid culture media, 1430.
— — on man in Italy, 1431; associated with dermatophytosis, 1357.
Yeasts of medical interest, monograph on, 1553.
— on man in Germany, 1450.

Zinc undecylenate, use of, against dermatophytoses, 1501; *Microsporum audouini*, 1532.